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CONTRIBUTIONS TO PRACTICAL MEDICINE.

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CONTRIBUTIONS

TO

PRACTICAL MEDICINE.

BY

SIR JAMES SAWYER, KNT.,
_c

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AND MIDLAND HOSPITAL FOR SICK CHILDREN, PRESIDENT OF THE MIDLAND MEDICAL
SOCIETY, VICE-PRESIDENT OF THE NEW SYDENHAM SOCIETY, AND PRESIDENT OF THE
CLINICAL BOARD OF THE GENERAL AND QUEEN'S HOSPITALS, ETC.

THIRD EDITION:
REVISED AND ENLARGED.

Birmingham:
CORNISH BROTHERS:
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MEDICAL DEPARTMENT.

YORKSHIRE COLLEGE

VICTORIA, CANADA.

To the Memory of
Alexander Fleming,

M.D. Edin., F.R.C.P.,

some time Consulting Physician to The Queen's Hospital, who was a distinguished physician, a sound clinical teacher, and an earnest and successful therapist, these pages are affectionately dedicated by
a grateful pupil.

PREFACE TO THE THIRD EDITION.

The exhaustion of a second and larger edition gives opportunity for another issue of this book. In the present volume there are joined some additional chapters, new and old. But not only are there these additions and, besides them, some of the finer textural changes which time and thought draw out. As in the finishing of a painted portrait, so also in the revision of a book, there is an idealisation by omission. So a few of the old chapters appear no more. As always in these writings, I have kept my aim pointed at utility in medical practice, and I have tried again to focus some issues of later experience, especially in the practical details of a physician's art, and more particularly in those which are remedial and curative. In the enjoyment of a larger leisure for the pen, perhaps some faults might have been avoided. My brethren, however, will know how to judge generously a produce of the shortened and scattered silences of daily clinical work.

31, TEMPLE ROW

BIRMINGHAM, 1902.

PREFACE TO THE FIRST EDITION.

From such of my medical writings as have been published previously, as clinical lectures, essays, and annotations, in various professional periodicals during the last eighteen years, I have been induced to select some which I hope may not be thought unworthy of reproduction. These I have rewritten, pruned, and amplified, corrected by my later experience, and collected in this volume.

31, TEMPLE ROW,
BIRMINGHAM, 1886.

PREFACE TO THE SECOND EDITION.

In five years, since the middle of 1886, a large edition of "Contributions to Practical Medicine" has become exhausted. In the present second edition I have revised and corrected every page of the first, by whatever experience I have been able to gather during twenty-five years of busy practice in treating the sick. I have added two new essays. The first is upon the treatment of gastralgia, and it was published originally in *The Lancet*, in 1887; the second deals with my researches concerning the use of ether as a menstruum in medication by the skin, and includes the substance of my communications upon this subject to *The Lancet*, last year. Throughout this little book I have aimed at utility in medical practice, and I have tried to observe the brevity of detail and expression which seems fitting in a time when there is no end of making books. If there be in these pages many wide gaps and much literary incompleteness, I can only plead the pressure of daily clinical work, and rely upon the generous judgment of my professional brethren.

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I.

THE CAUSES OF INSOMNIA.*

*The appetite of sleep.—The physiology of sleep.—
Etiology of insomnia.—Symptomatic in-
somnia.—Intrinsic insomnia.—Varieties of
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Emotional shock and prolonged mental
strain as causes of insomnia.—The nervous
temperament.—Symptoms of intrinsic insom-
nia.—Toxic insomnia.—Insomnia from
tobacco.—Alcoholic insomnia.—Insomnia
from tea or coffee.—Gouty insomnia.—
Senile insomnia.*

THE important subject of insomnia has engaged my attention for a long time. In 1878, I delivered a clinical lecture on the causes and cure of insomnia to the students of the Birmingham Medical School, in The Queen's Hospital, and the matter of this discourse was afterwards

* A Clinical Lecture: published in *The British Medical Journal*, December 1st, 1900; lately revised, rewritten, and extended.

further published in *The Lancet*, on June 15th and 22nd of that year. This lecture I revised and rewrote entirely afterwards, embodying in it some additions from my later experience in practice, and, so enlarged, it was included in each of the two editions, of 1886 and 1891, of my "Contributions to Practical Medicine." In the autumn of the year 1900, I reviewed the subject again in two clinical lectures which I gave at my hospital, and these were issued in print in *The British Medical Journal*, on December 1st and 8th, 1900. These last lectures, in which I have tried to bring their subject up to a point at least abreast of our latest knowledge in the principles and practice of medicine, I have revised, and rewritten; and I have amplified them, especially in their therapeutic parts. So rewrought, they form the contents of the following essay. This work, done as to the causes and cure of insomnia, that is, done as to particular diagnostic and therapeutic efforts in which the skill of the physician and the resources of our art are often taxed severely, in the intricacies of a difficult, delicate, and abstruse subject, I have tried to accomplish in the spirit of the Baconian philosophy, in the

spirit of that aphorism of Bacon which Sydenham prefixed to his renowned "Tractatus de Podagra et Hydrope," namely, "Non fingendum, aut excogitandum, sed inveniendum, quid Natura faciat, aut ferat." The result of my pleasant labours I venture now to offer to the judgment of my profession. My lectures on insomnia were delivered for the instruction of medical students in my clinical class; they are further published in these pages in the hope that they may help my medical readers in practice. In view of the conditions of the original delivery of these utterances, I have decided, in revising them, to preserve their colloquial style.

Sleep is a function of life, and life is a function of sleep, in man, in the animals which are a little lower than he is, in some sort in plants, in everything which lives. The living organism which cannot sleep cannot live. For all beings endowed with the crowning mercy of consciousness sleep is a pleasure as well as an appetite, and it is a necessity as well as both. For these conscious beings, strung as they are in their sentience to the most exquisite responses in the world's vast chorus of living harmonies, sleep is indeed and in truth "tired nature's

sweet restorer." For man, at the head of such beings, and perhaps the only of them which knows the cark of a mind's unrepose, or the wear of "that unrest which men miscall delight," sleep it is indeed which smoothes out life's fretting creases and "knits up the ravelled sleeve of care." That you may become practitioners of medicine you are students in this place of the manifold sciences of medicine in some of their chief practical bearings, mingled with the inexorable simplicities and with the endless intricacies of the art of healing. You are clinical students here of that cherished art of ours, an art which is of men philanthropic and of time perennial, as its lovely figure stands revealed in all its subtle and splendid details, firm and broad based upon the blended foundations of its great constituent sciences. You are students in this hospital I love of that art of ours in clinical medicine, in its concrete application to individual cases of human suffering, no two of them indeed ever quite identical, no more than are identical a tree's waving leaves or the billows of the rolling sea. Let us press forward together, in all the absorbing zest of the pursuit which is ours, to the brightest understanding which yet there may be of the

intimate nature of sleep. Let us collect, discriminate and sort the causes which make for insomnia. Let us sift and sum up all which our sciences and our art, our experience and even our empiricism, of which last I am not ashamed, have of tried adoption for its cure. Your physiological training, your clinical insight, your utilitarian aim, and even your poetic fancy and your literary culture, may all find coördinated play in the depiction of functions and maladies which are intricate with our lives, and associate with our highest attributes.

Favoured by your kind attention, I purpose to offer you some considerations upon the vital function of sleep, and upon the conditions, causes, and cure of insomnia, based upon a somewhat long and successful experience of those subjects in practice as a physician. These subjects are certainly of first-rate importance in relation to our knowledge of the science and our practice of the art of medicine. Possibly you may scarcely be able to appreciate their relative importance while you are hospital students. Later in your careers, when you become engaged in actual practice among the sick, and especially when you take part in what is called private

practice, often will you be confronted by the perplexities of insomnia, and often will your pleasant duty lie in successfully unravelling the causes of sleeplessness, on that soundest principle of causation and of therapeutics, *cessante causâ cessat et effectus*, and in curing insomnia by counteracting those causes, and by making their tiresome and diresome effects to cease. I hope to be able to show you that in such happy results the science and art of the physician may play a successful part. Like thirst and like hunger, sleep is an appetite. We may define an appetite, in the words of the philosopher Bain, to be a craving produced by the recurring wants and necessities of our bodily or organic life.* An appetite, strictly so-called, has two characteristic marks, and these marks are strikingly characteristic of sleep; these marks are two conditions which are true to sleep—namely, its periodic recurrence and its organic necessity. We know that the natural course of a human life brings on sleep without the volition of the individual willing the event. The true character of sleep as a veritable appetite

* The Senses and the Intellect.

appears when it is resisted. Under such resistance the individual person experiences what is called, in metaphysical parlance, a "massive" form of uneasiness, discomfort, and pain. The will of the individual, in the presence of this uneasiness, is energetically urged to remove such discomfort and unrest, and is urged from pain towards pleasure, is urged to obtain the gratification of relief in what Bain called "the corresponding voluminous pleasure of falling asleep."* In this imperatively urgent volitional impulse is the appetite of sleep.

The intimate physiology of sleep is a difficult subject, and the difficulties of its explanations have been the topics of much controversy, and such controversy appears to have issued from various combinations of the teachings of observation, and of experiment and of analogical and other reasoning, upon the phenomena of sleep. I do not propose to follow at length the details of this part of our subject. As a clinical teacher I must not overload your memories, but rather must I try to make easy your mental digestion. For our practical purposes I think we may under-

* Mental and Moral Science.

stand that two distinct but associated and related vital changes occur in sleep. The one is some intrinsic change in those ultimate tissue elements of the brain which are concerned in consciousness; the other and "coarser" change is a diminished supply of blood to the brain, and especially to the blood vessels of the cortex of that organ. The former change is at present undemonstrable, excepting by inferential reasoning. Perhaps there is some essential and intrinsic change in the brain, and perhaps there is some such change in the spinal cord and ganglionic nervous system, of rhythmic occurrence, which is a condition of healthy sleep. Perhaps there is a functional depression of these parts in sleep, and especially of the cerebral cells, arising from "an accumulation in and around them," as Sir Thomas Lauder Brunton puts the matter as to the cerebral cells in sleep, of some of the products of normal tissue waste. Perhaps for normal sleep there must arise both these processes. I think it likely that there is in sleep a rhythmic change such as has been indicated, and that this change is sustained by the physiological effects of some of the issuants of those tissue changes, muscular and nervous, which especially

occur in the active waking state of the body.

Perhaps for our sleep we must drown our cerebral cells in a kind of auto-intoxication with the ashes of our waking fires. We may usefully recall this view of the subject when we use exercise and fatigue as remedies for insomnia. The proof of the other broad change in sleep—namely, diminished blood supply to the brain, and especially to its cortex, rests on inference from physiological analogies, on various observations, and on the solid basis of direct experimental evidence. We must note, however, that the human brain, in its perceptive, cogitative, and volitional functions, in these great divisions of consciousness, is not the only part which sleeps. The whole living body sleeps. The changes which the event of sleep declares certainly extend beyond mere loss of consciousness; they extend to secretion, to the action of the heart and blood vessels in the general circulation of the blood, to respiration, to “reflexes,” and so extend to all the tissue modifications, and to all the other vital activities, upon which such manifold transitions depend. In order to complete your precognitions of the physiology of sleep, before we pass on to consider the several con-

ditions of insomnia and their appropriate therapeutics, I may refer your attention to the admirable accounts of these subjects to be found in the text-books of Dr. Augustus Waller* and of Sir Michael Foster.† From each of these volumes I offer a brief quotation, which sufficiently illustrates our subject for my present purpose. On that part of his subject which is so important from a therapeutical standpoint—namely, the state of the cerebral circulation during sleep, Dr. Waller says :

“Although there is no doubt that in coma—a pathological state similar in some respects to physiological sleep—the cerebral vessels are congested, the observations of Durham on the exposed cerebrum of sleeping dogs, and of Jackson on the retinal vessels of sleeping infants, are to the effect that vessels shrink in sleep, and we may therefore feel reasonably assured that the sleeping brain, in common with other resting organs, receives less blood than in its state of activity. Moreover, Mosso’s investigations on

* An Introduction to Human Physiology. By Augustus D. Waller, M.D., F.R.S., 2nd Edition. London, 1893.

† A Text-Book of Physiology. By M. Foster, M.A., M.D., LL.D., F.R.S., 5th Edition, Part IV. London, 1891.

exposed human brains afford evidence that the organ becomes more vascular during mental activity.....”

That sleep concerns the whole body, and not the brain alone, is well put by Sir Michael Foster. He says :

“Though the phenomena of sleep are largely confined to the central nervous system, and especially to the cerebral hemispheres, the whole body shares in the condition. The pulse and breathing are slower ; the intestine, the bladder, and other internal muscular mechanisms are more or less at rest, and the secreting organs are less active, some apparently being wholly quiescent ; the secretion of mucus attending a nasal catarrh is largely diminished during slumber, and the sleeper on waking rubs his eyes to bring back to his conjunctiva the needed moisture. The output of carbonic acid, and the intake of oxygen, especially the former, is lessened ; the urine is less abundant, and the urea falls. Indeed, the whole metabolism and the dependent temperature of the body are lowered ; but we cannot say at present how far these are the indirect results of the condition of the nervous system, or how far they indicate

a partial slumbering of the several tissues."

You may find an interesting and instructive employment if you follow Sir Michael Foster through his discussion of the exact state of the body, and especially of the brain, in sleep. He points out, what is now generally accepted, that an alteration of the cerebral circulation is not the whole of sleep. He judges that "the essence of the condition is rather to be sought in purely molecular changes," and then he goes on to suggest a resemblance between the systole and diastole of the heart and the sleeping and waking of the brain; and then he dwells on the various periodicities which may be observed in the activities of the human body, and even suggests that the fundamental rhythm of the heart may be a reflection of the mysterious cycles of the universe, while it may yet be only the result of the inherent vibrations of the molecules of its own proper structure.

If we exclude from our consideration the insomnia which is a concomitant of some forms of unsoundness of mind, and which kind of insomnia I do not propose to deal with in these lectures, you will find that absent or imperfect sleep, inability to sleep at all, or at a convenient

time, or long enough, without the aid of drugs, is a frequent consequence or complication of numerous and varied conditions of disease. Etiology, as you know, is that division of the science of medicine which has to do with the causes of disease. The etiology of insomnia embraces the enumeration of all the causes of the malady. These causes are numerous, and a classification of the varieties of insomnia, upon the basis of their causal distinctions, is somewhat difficult. Let me recommend to you, for use in practice, the following classification of the varieties of sleeplessness under our consideration. It is the best etiological arrangement I can form, of the causal intricacies of our subject. It is a classification which you will find of service clinically, when you pursue the discovery of the particular causation of any given case of sleeplessness. Cases of insomnia seem to divide themselves naturally into two groups, namely, of cases of what may be called *symptomatic insomnia*, and of cases of what may be called *intrinsic insomnia*. Symptomatic insomnia attends a vast variety of morbid states, and is secondary to them, or is part of them. Intrinsic insomnia, as we shall see later on, is capable of distinct definition.

and it breaks up naturally and simply into three smaller divisions, upon a causal principle of division. Pain, if severe enough, and from whatever cause arising; pyrexial elevation of temperature; frequent coughing, such as often occurs in pulmonary consumption; dyspnoea, such, for instance, as results from obstructive dilatation of the cardiac cavities, and appears to require an extraordinary vigilance of the nervous centres for the maintenance of the vital processes of respiration and circulation—are clinical conditions of body which may prevent, shorten, or break up sleep. Such conditions are frequently met with in medical practice, as single causes of insomnia, or as conjoint causes of it in various combinations. In such and in similar instances the cause of the sleeplessness is obvious, and the consequential character of the insomnia—that is, its dependence upon a distinct and sufficient cause—is clear. For the therapeutic control of this kind of insomnia we may employ with success one of two curative methods, or we may employ a judicious combination of these methods, such combination being founded upon a skilled appreciation of the especial needs of each individual case. We may control sleeplessness of the kind in question either

by the exhibition of remedies which directly cause sleep, that is to say, by the administration of some of the drugs which we know as hypnotics or soporifics, or we may control it by the employment of measures which combat the cause of the insomnia, by removing pain, by reducing the heat of fever, by quelling cough by relieving cardiac disturbance and dyspnœal discomfort, and so on ; or by using in conjunction hypnotics and remedies addressed to the removal of the cause of the sleeplessness. In cases of symptomatic insomnia, as in medical practice generally, you will find that it is convenient to your duties, and that it tends to the thoroughness of your ministrations, if you regard the therapeutic indications of each case from the well-known standpoints, respectively, of the *indicatio causalis*, of the *indicatio morbi*, and of the *indicatio symptomatica*. By a judicious combination of the remedies so suggested you will be able to deal successfully with cases of symptomatic insomnia. By regarding the cause of the illness with which you have to deal as a medical attendant, by regarding the various pathological processes which underlie the progress of that illness, and by regarding the symptoms of that illness, by regarding these points in turn, or

together, or in various combinations, with a therapeutic intention, you may arrange your remedial efforts upon a systematic and comprehensive basis.

There is a simple inability to sleep, which you will often be required to cure—a kind of insomnia which may be called for the sake of simplicity, but perhaps scarcely with strict truth, *insomnia per se*. This is a kind of wakefulness for which we cannot discover an objective or obvious physical cause ; it is a kind of wakefulness which seems to depend upon an inability of the brain and nervous system generally to adapt themselves to the conditions which are necessary for sleep. We meet with this disorder more in private than in hospital practice. It occurs mostly in persons who are members of what are known as the upper and upper middle classes. It occurs mostly in persons of high mental endowment and of neurotic temperament. The malady is of extreme importance, and, happily, if its causes be understood and judiciously corrected and controlled, there are few affections which are more within the sphere of curative therapeutics. I think I can show you how to unravel the complex causes and discover the successful treatment of this kind of insomnia.

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The causes and the course of particular instances of insomnia present some striking differences. You must know these differences, and be ready to recognise them, for the knowledge of them clears up alike the therapeutics and the prognosis of individual cases of the malady. I have found it to be convenient in practice to arrange the different clinical varieties of insomnia into groups, in which the cause of the affection is the principle of division. These groups I call respectively the *psychic*, the *toxic*, and the *senile*. Let us see how these divisions work out in detail.

The brain in natural sleep is, as we have seen, relatively anæmic. The cerebral arteries are more filled with blood than during sleep, when the brain is in full waking and working activity. When thought is active the cells of the brain concerned are living relatively rapidly; they are actively receiving nourishment from the blood, and they are, too, actively ridding themselves of the waste products of their vitality. In sound natural sleep the brain is inactive—at least, all except those parts of it which are concerned in the processes of organic life. In sleep the blood flows to and through the brain in streams which are smaller and gentler than in the waking state. The cells

concerned in thought, volition, and feeling are not expending energy, they are renewing it and storing it—they are resting. Any cause, however mysterious its operation, which directly prevents a repose duly deep of a sufficient number of those brain cells which are the organs of conscious thought, will render sleep impossible; relative cerebral hyperæmia is an inseparable consequence of such activity, and such relative cerebral hyperæmia becomes a concurrent but subordinate cause of insomnia. Here there is progression through a vicious circle of two terms, in which the impulse of the morbid movement springs from the cerebral cells. So we see that there are causes of insomnia which we may fairly regard as acting primarily in sustaining cerebral activity, and with it, and in consequence of it, relative cerebral hyperæmia, which hyperæmia becomes a contributory cause of the cells keeping awake.

In some other cases of insomnia I think we may regard the malady as arising primarily in a perversion of the cerebral blood supply. Any cause which prevents the brain from becoming sufficiently relatively anæmic for sleep will produce sleeplessness. Any ingested agent which sustains cerebral hyperæmia, or any pathological change

which impairs sufficiently the contractility of the smaller cerebral arteries, may prevent wholly, or in part, the occurrence of such a degree and extent of cerebral anæmia as is required for the production of sleep, and without which sleep cannot be.

So there are causes of insomnia which act primarily in exciting and in sustaining a relative cerebral hyperæmia, and with it, and in consequence of it a cerebral activity which is wakeful. Here there is again a progression through a vicious circle of two terms, but one in which the impulse of the morbid movement springs from the cerebral blood vessels. In conscious cerebral activity, which is a complex condition of at least dual causation, in which thought implies increased blood flow, and increased blood flow implies thought, perhaps it may be considered that we cannot, with strict accuracy, allow precedence to either of the causes which are essential to the common result. In medical reasoning there is little which is so difficult as tracing effects up to their causes, and there is little so easy as the invention of causes for effects. Let this caution make you wary. Take due pains in practice to analyse the causation of each particular case of insomnia. When you make such analysis you will find that in some

cases of sleeplessness, as in the psychic group, undue and protracted cerebral activity is the primary vice, and that in others, as in the toxic and senile varieties, relative cerebral hyperæmia is the initial error, and wakeful cerebral action its direct consequence.

In a case of psychic insomnia some sudden emotional shock of a depressing kind, as grief at the death of a beloved relative, will sometimes be found to have produced at once persistent sleeplessness, which sleeplessness will only yield to carefully directed therapeutic procedures. Again, prolonged mental strain, in all its varied phases, is a common cause of the psychic variety of insomnia. Our patient may be a student preparing for an examination. For weeks, in spite of fatigue, he may have shortened his hours for sleep that he might lengthen his time for reading ; and he may have been in the habit of keeping himself awake, when he could readily have fallen asleep, by drinking strong tea or coffee or by smoking tobacco. But he could always go to sleep at once when he went to bed, and sleep soundly, until, after some weeks of his abnormal work, with the nearer approach of the examination bringing increased anxiety as to the result of the ordeal,

he found he began to sleep badly or almost not sleep at all. He grew miserable ; he could not remember what he read ; he felt unfit for any exertion ; and he could not face his examination. Or, our patient may be a young professional man. He has commenced practice, or rather to wait for practice, as a barrister, a solicitor, a physician, or a surgeon. He begins to find that causes or cases have not been waiting for his advent ; clients or patients are "few and far between." For a time he manfully struggles on, his hope and his health sustaining him ; but these at last yield under the continued pressure of new disappointments and accumulating anxieties. He wants money ; his friends will give it to him readily if he will ask for it, but his pride prevents him. It is not a gift or loan he needs ; he does not want to beg or borrow money, he yearns to earn it. And while he has been hoping and waiting, and growing sick with the failure of his expectations, he has been working early and late in exacting his studies—perhaps straining his powers in preparation for some higher examination, and, it maybe withal, adding the denial of due sleep and exercise, and so he has been wasting and wearing his psychical and physical energies, in the trust

that he might thus so skill himself the more to secure the longed-for practice. At last he has fairly broken down. He has grown thinner ; he looks haggard ; he is filled with groundless fears ; he is weighed down with the ineffable misery of insomnia ; he has constant headache and noises in his ears ; he thinks his memory is failing ; he is dull and listless ; he has been lying awake for hours after going to bed, or, waking in the "small hours," he has been unable to sleep again, and when he has slept he has had horrid dreams ; and he comes to us for help because he can scarcely sleep at all, and he is possessed by the fear that he is going mad. Here we see instances in which acute or continued mental strain is the primary cause of the sleeplessness. Where the shock has been sudden and severe it has been sufficient to rouse a given group of cells into persistent activity, and to produce psychic insomnia suddenly. So produced, the sleeplessness may become a persistent trouble, which yields only to judicious therapeutic procedures. In other cases, and more commonly, the insomnia has only arisen after prolonged mental strain, as that which a student may undergo in over-reading for an examination, as that of

continued financial anxiety, or that of arduous and sustained literary composition. Where the shock has been sudden and severe enough, there has resulted a persistent wakeful activity. Where the strain has been less intense, but kept up long, a monotonous group of ideas has been maintained in exhausting recurrence. In either case it would appear that sleeplessness did not occur until there arose from exhaustion partial or complete vasomotor paralysis of the intra-cranial blood vessels ; it arose when the arterioles of the brain had no longer that contractility without which sleep is impossible. In these forms of insomnia unnatural excitation of the cerebral cells is probably the initial fault. This point of view gives the best working hypothesis for our treatment.

I must now further direct your attention to the question of the causal association of what is known as the nervous temperament with intrinsic insomnia, and especially with this psychic variety of the malady. In my experience the subjects of the psychic variety of insomnia are mostly men, and almost invariably men of the temperament which is known as the nervous temperament. I advise you to study tempera-

ments. Their recognition is of much value in diagnosis, in prognosis, and in therapeutics. A temperament may be defined as "that individual peculiarity of physical organisation by which the manner of acting, feeling, and thinking of every person is permanently affected," and the nervous temperament is marked by great sensitiveness and activity of the nervous system.*

We have lately been too ready to ignore temperaments; our fathers studied them better and regarded them more than we do. But I shall not go to any authority for a portrait of the nervous temperament; I shall describe it as I think I have found it. I use the phrase nervous temperament to indicate a distinct type of outward form, of manner, of habits, and of tendencies. Temperaments present their various types most frequently in men. Comparatively few women exhibit a well-marked temperament; but when a woman is of the nervous temperament, in her the temperament is mostly very distinct indeed. Two or more of the different kinds of temperament may appear to be blended; we have a compound

* A Medical Lexicon. Published by the New Sydenham Society.

of reciprocally modified temperaments. A man of distinctly nervous temperament has a quick manner ; he is nearly always in a hurry ; he is apt to talk volubly and eat quickly ; if he does not know us well, he fidgets with his hands or legs when he is speaking ; he talks abruptly, earnestly, and fluently, often splitting up his phrases, or recalling and correcting them, and especially modifying qualifying words, such as adverbs and adjectives, in his anxious desire to express what he conceives to be the finest shades of truth. A man of this temperament is apt to "overdo" everything into which his feelings enter. He is apt for hobbies ; and he is often a diligent collector of curiosities. When he becomes a patient he is harassed about some trivial symptom ; he has felt his heart beating, and he thereupon fancies he has some deadly cardiac disease ; he thinks his memory is failing, and he forthwith imagines he is going mad. *Ars medici est in observationibus* is a maxim of our schools which was a favourite one of that excellent clinician and successful physician, the late Sir Andrew Clarke, and this proverb of ours is very true in the detection of the signs of the nervous temperament.

A man who has suffered much from insomnia becomes the subject of a well-marked group of symptoms. Most of them are given by certain writers amongst the signs of cerebral hyperæmia. It is probable that they mark a particular variety of exhaustion of the brain, attended by more or less abnormal increase of intra-cranial vascularity, and accompanied by some general prostration of the bodily powers. Here are the concomitants of insomnia as I have found them. The patient has a dull and listless look ; his eyes are wanting in vivacity ; the upper lids may droop a little, and they may be slightly swollen. The complexion is sallow. There is headache ; of this there are two kinds, which either co-exist or occur separately. The commoner variety of headache is a dull pain felt over the whole of the vertex, together with a vague and widespread feeling of oppression in the head ; the other is a sharp, shooting pain, which comes on suddenly, and usually in single flashes, and which gives the idea of a knife being driven through the head from one temple to the other. Occasionally the patient feels a momentary giddiness ; this may cause a false step, but it never lasts long enough

to give rise to staggering. The skin of the head, especially near the sagittal suture, may be tender. There are noises in the ears, in one or in both, usually of a low-pitched whistling character. They may come on suddenly, and without apparent cause, as when the patient is talking quietly, or they may only come on when the attention is more closely occupied, as in writing a letter or casting up figures. A striking sign is a slight impairment of hearing. The patient may be unaware of it, but those with whom he lives have noticed that he often asks them to repeat what they say to him because he could not quite catch their words. He may complain of seeing spots before his eyes—little cobwebby black lines, which come and go and float about, or bright, bluish, phosphorescent-like specks which seem fixed for a moment, one before each eye, and which only appear when he first directs his eyes towards an object. There are some abnormal sensations in the skin ; not formication, such as is apt to arise in organic nervous disease, but a sharp, transitory, and isolated prickling, as of the movement of a single pin, which lasts only for an instant, and affects either the limbs or the trunk, mostly the former. There may

be a peculiar twitching of muscles. It is not a vibratory tremor, like that of progressive muscular atrophy, nor is it a contraction of a whole muscle, or of a group of muscles, such as arises in true convulsion. But, while the patient is sitting still, a considerable part of a muscle becomes the subject of rapid clonic movements, and these are wholly independent of volition. These movements mostly occur in the lower extremities, but they are rarely sufficient to move the limbs ; they usually affect the lower part of one vastus internus, and last for about a minute. The patient can feel the movements by attending to the affected part, and he can also feel that the muscle moves by applying his hand to it. In such a case there is often unnatural and painful sensitiveness to external impressions. The patient craves for quiet. A bright light troubles him. Noises, the sight of moving objects, touches, as of the hand of a friend upon his shoulder, annoy him. There is not an increased sensitiveness to external impressions, but impressions which are enjoyed or unnoticed in health become irritants.

In the toxic variety of insomnia the cause of the sleeplessness acts primarily upon the blood

vessels of the brain, giving rise to some degree of arterial hyperæmia. Cerebral vascularity, especially the arterial supply of the cortex of the brain, is maintained at such a height and so long by some poisonous agent that conscious cerebral activity—that is, wakefulness—is an inevitable consequence. Such a poison may be introduced into the body from without, or it may be a product of diseased processes arising within the body itself. Of course, I use the word “poison” in a restricted sense; I do not mean something which kills, but only something which produces abnormal manifestations in the living body. The poisons with which we have here to do are not lethal poisons, but milder noxious agents which produce certain distinct and abnormal manifestations. Tobacco, alcohol, tea and coffee are the external poisons which most frequently cause sleeplessness, while the internal or autogenetic poisons are certain waste products of tissue metamorphosis which accumulate in the bodies of gouty persons or of those whose kidneys are inadequate.

Possibly some other forms of auto-intoxication may be found to cause insomnia. Perhaps insomnia may sometimes be a neurosis having

- its origin in toxic absorptions by the gastrointestinal tract. Insomnia may come and go with constipation, and the explanation of this association may be a toxic one.

With regard to the smoking of tobacco, many a man cannot sleep either sufficiently or soundly because he smokes excessively. Smokers often find by their own experience that they sleep badly if they smoke more than their usual quantity of tobacco, or if they smoke tobacco of a stronger kind than that to which they are accustomed. So a smoker who suffers from insomnia may find the cure of his sleeplessness in the restriction of his smoking. He need not give up, nor shorten, nor change his work, nor need he change his "surroundings"; if he restrict his smoking he soon sleeps well.

Similarly, it is true of snuff-taking in relation to insomnia. Men of nervous temperament, or men into whose temperament there enters a distinct and considerable blending of the nervous element, often smoke tobacco or take snuff largely. The consumption of tobacco by smoking or snuff-taking stimulates the cerebral circulation. This stimulation, if pushed to undue limits, induces cerebral vasomotor debility or

paralysis, with a consequent tendency to persistent conscious thought, and so to wakefulness.

Similarly, too, alcohol causes insomnia. The man who drinks to commencing drunkenness mostly sleeps soundly, if not well. But many a so-called moderate drinker knows that he sleeps badly if he take a little more than his usual quantity of wine after dinner, or even his usual quantity of some unusual wine. Alcohol flushes and dilates the smaller blood vessels, especially those of the brain; if such a condition be maintained, sleep is disturbed or wanting. We have all seen the insomnia of delirium tremens: the patient cannot sleep because the lesser arteries of his brain are paralysed by alcohol, and sleepless cerebral activity is the inevitable consequence. Far short of what is usually called alcoholism, we often meet with cases of insomnia in which alcohol alone is the cause of shortened, interrupted, and disturbed sleep. The patient may pride himself upon his moderate use of fermented stimulants, and he may be wholly ignorant of the cause of the sleeplessness for which he consults us. We fail to find any sufficient psychic cause for his insomnia; but if we take away or diminish

his wine or his grog, or induce him to consume it before the evening, we find he soon begins to sleep well.

Again, the effects of the consumption of tea and coffee in causing sleeplessness are well known. This effect is so obvious that patients usually remedy it for themselves. As you well know, tea in the form of an infusion and coffee in the form of an infusion or of a decoction are generally used in civilised countries as the daily beverages of the people. Tea leaves contain an alkaloid which has been called theine, and coffee seeds contain an alkaloid which has been called caffeine, and theine and caffeine have been shown to be identical, and both these leaves and these seeds contain oily principles. With regard to tea, what may be called its physiological action appears to depend on the joint action of its theine and of the volatile oil which tea leaves contain. What is called green tea is produced by drying the fresh leaves on a heated iron plate until they become shrivelled; while black tea is manufactured by placing the leaves in heaps and allowing them so to lie while they undergo a kind of fermentation, after which they are dried. Green tea and black tea are

powerful cerebral stimulants, exciting the mental faculties and the cerebral circulation, and tending to prevent sleep. Coffee, too, is a cerebral stimulant and antisoporific. It is sometimes used in medicine for these properties, to counteract the effects of opium and its derivatives and of other narcotic poisons. Some people are extremely susceptible to the sleep-preventing effects of tea and coffee; others, by use, do not feel such effects, even when considerable quantities of the beverages are consumed. In all cases of bad sleeping you should make sure that tea or coffee is not taken to excess or near bedtime.

In gouty persons, quite apart from their gouty pains, there may be some insomnia, of a kind which is probably toxic in its causation. So, also, in a patient whose kidneys are failing, who has renal inadequacy. In such cases it would seem to appear that the accumulation in the blood, in consequence of deficient excretion, of the products of tissue-metamorphosis causes a general restlessness which disposes to insomnia. Insomnia so caused is not severe and it is rarely complete. There is slumber rather than sleep. There is restlessness, perhaps some excessive

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irritability to certain external impressions, short and broken sleep, and what may be called superficial sleep, rather than prolonged wakefulness. In this connection I may remind you that you should observe the tension of your patient's pulse. A patient may complain that he sleeps very badly, that he lies in bed awake for some hours and has great difficulty in "getting off" to sleep, that he sleeps lightly, awakens often, and dreams much. You may find he has a pulse of increased and high tension, with accentuation of the aortic second sound, and with the cardiac first sound lengthened and muffled, perhaps reduplicated, at the apex of the heart. In a case of chronic kidney disease there may be also the physical signs which mark the characteristic cardiac hypertrophy which accompanies chronic contracting nephritis, and is an effect of it or a concurrent effect of a remoter pathological cause. Insomnia in such cases is likely to be due to the maintenance of a state of high tension in the cerebral arteries, the tension in them not falling sufficiently for prolonged, deep, and dreamless sleep. In practice you will find the causation of many of these cases of insomnia, and you will find sound therapeutic

indications too, in the signs of the gouty diathesis or in the discovery of albuminuria. Here I must give you a caution, which you may usefully remember in practice, namely, never accept a patient's statement that he is gouty without the establishment by your own observation of facts sufficient for such a diagnosis. Insomnia which is purely nervous may be wrongly attributed to gout, and depletory measures may be adopted when corroborants are really indicated. The diagnosis of gout is a diagnosis for which patients often have a tender affection, and I am afraid it is a diagnosis which is often erroneously made, and wrongly handed on through a succession of credulous advisers. Do not fall into the frequent error of making a diagnosis of gout because a specimen of your patient's urine which is brought to you shows a deposit which to the naked eye is like unto grains of cayenne pepper, and which deposit is made up of aggregated crystals of uric acid. Such a sediment may be only an innocent result of an acid fermentation such as frequently arises in urine after its voidance.

• As I have already told you, there is a senile form of insomnia. Remember that senility is

a relative term. Some persons are senile early, others only later. With much truth it may be said that a person is not as old as his years, but as old as his arteries. You may perhaps have observed amongst your friends that an exaggerated appreciation of the merits and value of early rising often increases as age advances. The broken and short sleep of many old persons is mainly, if not entirely, the result of senile degeneration of the smaller cerebral arteries. Those vessels are less elastic and less contractile than in health, and their weakened walls often lead to their permanent dilatation; the smaller cerebral arteries are physically unable, by reason of a degenerative diminution of their resilience and of their contractility, to adapt themselves completely to that condition of relative arterial anæmia which is of the essence of healthy sleep. The tendency of this condition of the blood vessels of the brain to prevent, to lessen, or to interrupt sleep is probably to a great extent counteracted by the cardiac feebleness which so frequently, and which, within certain limits, it may be said fortunately, co-exists with senile vascular changes. When arteries are brittle, cardiac failure, within certain limits, is a conservative lesion.

II.

THE CURE OF INSOMNIA.*

*No "rule of thumb" cure.—Hypnotic drugs.—
Risks of hypnotics.—General treatment.—
Cure of anæmia—Alcohol.—Exercise.—
Monotonous impressions.—Bedclothes.—Food
—Cold.—Toxic insomnia.—Senile insomnia.*

THERE is no "rule of thumb" cure for insomnia. Each case must be separately studied ; the details of its cure can only be decided under competent medical advice. I will help you all I can now in this part of our subject ; but many remedial details are only suggested by the exigencies of particular cases, and are only developed as the fruit of long experience in the treatment of persons suffering from sleeplessness. I shall tell you something of the use of hypnotic drugs, and of their dangers ; I shall try to impress upon you the importance of stopping overwork, when over-

* A Clinical Lecture : published in *The British Medical Journal*, December 8th, 1900 ; since revised and extended.

work is a cause of insomnia ; and I shall point out to you many hygienic considerations which bear upon the cure of insomnia, and some useful therapeutic adjuvants which I have found helpful to that end in my practice, and which may suggest to you other successful remedial procedures.

In the treatment of insomnia you may find it necessary to exhibit some of the drugs which are known to you as hypnotics or soporifics, which are remedies that induce sleep. When you have to deal with a case of insomnia do not assume that you must of necessity give a hypnotic drug. I advise you rather to assume that you can cure a given case of insomnia by understanding its particular causation and by remedying the same, rather than by attacking the effect by dosing with some hypnotic. Give hypnotics only in exceptional cases ; only administer such drugs when you cannot help it. Your experience in practice will enable you to decide, with increasing precision, when such an exceptional case is before you. Rely whenever you can upon an intelligent causal treatment of insomnia, and upon a judicious employment of some of the non-medicinal helpers of sleep which I am about to describe to you. As a rule the successful treatment of a case of

sleeplessness follows from the discovery of its cause. In the severer forms of psychic insomnia we must often at once secure sleep by the action of some efficient hypnotic. I prefer opium or chloral. By the use alone of one of these drugs we can often quickly cure acute insomnia depending upon some sudden mental shock or strain. You will find that a few nights of sound and sufficient sleep, artificially induced by the exhibition of a reliable hypnotic, will do more than anything else to restore to the brain the power of sleeping without further aid from drugs. Besides chloral hydrate, opium, morphine, and the other soporific derivatives of opium, the chief hypnotic drugs are sulphonal, trional, paraldehyde, amylene hydrate, and the bromides, to which may be added alcohol and affusion of the head with cold water. For details concerning the comparative merits and demerits of chloral hydrate, paraldehyde, amylene hydrate, sulphonal, and trional, I must refer you to the admirable writings of Professor Binz.*

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Sir T. Lauder Brunton insists upon a well-recognised and valuable consideration, namely,

* Lectures on Pharmacology. New Sydenham Society's Translation.

that a combination of hypnotics is sometimes more successful than any of them singly. He recommends a combination of "small quantities, such as 5 or 10 minims, of solution of opium or morphine, with 5 grains of chloral and 10 to 30 of potassium bromide."* These and other hypnotics may be variously combined to meet the indications of each particular case, according to the judgment of a skilful adviser.

I must warn you very plainly and very seriously of the risks which attach to the administration of powerful hypnotic drugs. Many human lives are yearly lost as the consequence of the taking by sufferers from insomnia of overdoses of hypnotics. All drugs which produce sleep as a physiological effect, and the relief of insomnia as a therapeutic action, with the exception, perhaps, of the bromides, produce stupor rather than sleep in overdoses, which deepens into the sleep which knows no waking when they are ingested or injected in larger doses still. So never allow a patient to dose himself with hypnotics. Keep the matter quite within your own secure hands, upon well-recognised limits of safety. In

* A Text-Book of Pharmacology, &c.

the less acute and more chronic forms of psychic insomnia, where the sleeplessness or wakefulness usually depends upon prolonged worry or overwork, I employ chloral or other powerful dormitives sparingly. They should only be used as temporary remedies, when it is necessary to secure at once a fair amount of sleep. A patient should never be allowed to swallow chloral or any other of the dangerous but valuable hypnotics whenever he feels so disposed, neither should he apportion their doses for himself; he can only safely take them under direct medical control and observation.

Another important point must not escape from view. It is this: an overworked man or woman must never be permitted to go on with his or her overwork and habitually secure sleep by chloral or any other hypnotic. In such a case we must relentlessly aim at preventing the sleeplessness by removing its cause, instead of pursuing the illogical and precarious course into which a patient would often persuade us of permitting that cause to continue, and of trusting to counteract or suppress one of its effects by medicine. Work which prevents due sleep is dangerous work. When a man cannot sleep because he

works his brain too much, we must make as a condition of our help that he stop or greatly lessen his labour; especially should he abstain from mental work for some hours before going to bed. In many persons the cerebral hyperæmia of severe mental toil does not fall down to the circulatory limits required for healthy sleep for several hours after the cessation of such work. But I advise you to be wisely suspicious as to accepting work as a cause of insomnia. Nature provides that disposition to rest shall follow work. It is mostly worry, not overwork, or it is work under wrong conditions, which brings unrest. *It is to tell*

Whatever the cause of the insomnia, a holiday, with complete change of scene and with distinct change of activities, will often do much to cure. Great as is the curative influence of new surroundings and of new outlets for energy, in many cases of psychic insomnia we cannot do without drugs. Potassium bromide is by far the best hypnotic in well-nourished patients, and in the slighter cases generally. It is marvellously powerful in producing nervous calm; it is a direct and quite safe brain sedative. But it must be given properly, and in full doses; after getting

into bed, 30 to 60 grains, dissolved in water, should be the dose. Sometimes you may usefully combine with it some drug which will favour the contraction of the weakened cerebral blood vessels. For this indication we may give tincture of ergot or tincture of digitalis, one or both. In many cases of chronic wakefulness arising from prolonged mental strain, the patient is distinctly anæmic. The insomnia cannot be cured unless the anæmia be cured. The pallor of the patient's face, the lightened tints of his visible mucous surfaces, and his soft and small pulse, declare the condition of his blood. Such a person mostly feels drowsy when he is up, and wakeful when he lies down. He needs hæmatinics, of which the best are iron and arsenic, singly or combined. His diet must be generous, containing plenty of fish, meat, and eggs. For such a patient alcohol is often the best hypnotic. The prescription of alcohol as a remedy in disease is often difficult and sometimes dangerous. To many people a "nightcap" of toddy is a superfluous, perhaps hurtful, luxury. It gives, however, perhaps better than anything else, rest and sleep to the worried brain of feeble persons whose blood is poor. I find that alcohol is the best hypnotic in many cases of chronic psychic

insomnia, when the patient is worried and weakly, sorrowful and anæmic. We need not exaggerate our responsibility in the prescription of alcohol, but we should never forget it. I have been accustomed to insist that when we use alcohol, in the form of any of the fluids which contain it, in the treatment of insomnia, we should explain to our patient the reasons for the employment of the remedy, and that we should discontinue this remedy, as we discontinue the use of other drugs, when the conditions which called for its exhibition shall have disappeared.

There are many other matters to which you must give attention in the treatment of chronic psychic insomnia, if you would follow my advice that you should only give hypnotics in exceptional cases, and only when you really cannot obtain a successful result without them. I can now do little more than mention the more important of such details to you.

Some of them you will find useful in some cases, in other cases others. How best to combine them in any given case experience will teach you. First, whether he sleep well or ill, the patient ought from day to day to go to bed and to get up at fixed and regular times. "Lying in bed

in the morning" is not a remedy for insomnia. Healthy sleep is a rhythmic act. The conditions for its periodic recurrence must be supplied. An afternoon nap for half an hour or so after a meal, with the feet kept warm before a fire, is helpful, and I have found in practice that it conduces to rather than hinders better sleeping in bed at night. Again, daily bodily exercise in the open air, but always short of great fatigue, must be enjoined. What is called carriage exercise is better than no outdoor change at all, but walking is a far better exercise, and cycling better still, and riding on horseback the best of all. A worn and worrying man, habitually wrapt up in an absorbing torture of self-consciousness, exaggerating his subjectivities, and sleeping badly, must come out of himself, and blot out his self-consciousness with the saving graces of objectivities when he mounts a cycle or a horse's back. Gardening in the open air, not in conservatories or hothouses, affords good exercise, and it is very efficient in keeping up objective attention.

Dwellers in towns may find good objective employment, of a kind counteractive of insomnia, in various physical exercises and drills, in fencing with foils, and in other similar recreations, all

too unwholesome

of which you must learn to understand in their several details, so that you may prescribe them intelligently to suit the particular needs and aptitudes of individual patients ; many may at least copy Archbishop Whately, who remedied the strain of his logic by splitting his logs, and give their minds a refreshing and recreative objective bent, and their muscles healthy work, by cutting up firewood. As to sunshine, I welcome the present therapeutic worship of the sun, and you will find free and long daily exposure to sunshine a valuable adjuvant in the cure of insomnia. Again, many people have acquired more or less insomnia in the acquisition of the bad habit of thinking out their affairs upon getting into bed.

In such cases especially, and in the cure of insomnia generally, people who find it difficult to get off to sleep have been advised to count monotonously, one, two, three, up to a thousand or more, until they fall asleep ; to picture some familiar scene and keep the mind fixed upon it ; to repeat the letters of the alphabet over and over again. The late Dr. Pereira gave some interesting illustrations of the well-known fact that the repetition of monotonous impressions on the senses of hearing, seeing, or touch, are

provocative of sleep. One passage from his monumental work on remedies I may quote to you. Speaking of monotonous impressions in the therapeutics of insomnia, he wrote: "This is the principle of 'the method of procuring sound and refreshing slumber at will' recommended by the late Mr. Gardner, who called himself the hypnologist. His method was for some time kept secret, and was first made public by Dr. Binns. It is as follows: Let the patient 'turn on his right side, place his head comfortably on the pillow, so that it exactly occupies the angle a line drawn from the head to the shoulder would form, and then, slightly closing the lips, take rather a full inspiration, breathing as much as he possibly can through the nostrils. This, however, is not absolutely necessary, as some persons always breathe through their mouths during sleep, and rest as sound as those who do not. Having taken a full inspiration, the lungs are then to be left to their own action; that is, the respiration is neither to be accelerated nor retarded too much; but a very full inspiration must be taken. The attention must now be fixed upon the action in which the patient is engaged. He must depict to himself that he sees the breath passing from

*a line cannot
by itself form
an angle, if
a straight line*

his nostrils in a continuous stream, and the very instant he brings his mind to conceive this apart from all other ideas,' he sleeps. 'The instant the mind is brought to the contemplation of a single sensation, that instant the sensorium abdicates the throne, and the hypnotic faculty steps it in oblivion.' " *

These various methods seem to be devices for changing the current of conscious cerebration. In my practice I have found the plan of taking deep inspirations commended. But for the most part these expedients succeed for a night or two, and they can scarcely be relied upon. These sundry practices may even keep up wakefulness; when the mind attends to them too closely, they may sustain the self-consciousness which keeps the brain from resting. To try hard to go to sleep is often the surest way to keep awake. We do many things best when we forget ourselves, and going to sleep is no exception to the rule. Again, to promote the sleep of a person in bed, you should make sure that the bedclothes which cover him are sufficient and not excessive. If the covering bedclothes be especially arranged

* Elements of Materia Medica.

in quantity each night by thermometric guidance, so as to secure that the thickness of the upper clothes will give to the inmate of the bed a general feeling of comfort, and not of sleep-preventing discomfort from either local or general chilliness or local or general over-heating, sleep will be powerfully promoted. And, further, if these arrangements be made with the knowledge and approval of the patient we may gain the valuable adjuvant of his self-confidence as to sleeping, and establish within him a happy expectation likely to be realised. For your guidance I may tell you that from observations I have made I have found that in a large bedroom in the middle of a large house, without a fire or other modes of heating and with a window open, a Fahrenheit thermometer stood at 70° or upwards in very hot weather, and at 44° or less in very cold weather. At a temperature of 44° the upper bed-clothing should be a sheet, three blankets, a light counterpane, and a light small blanket, this last not "turned over" at the top and not "turned in" at the bottom; while at a temperature of 70° degrees it should be a sheet only. Between these extremes the changes should be gradual. These extremes should be the ends of a series of

gradations passing through about nine terms. With a little care you can make a thermometric register, marking the suitable clothing for a given external temperature of the bedroom in any particular case, and so you may cure insomnia and prevent its recurrence.

In all cases the bedroom window should be open all night and all the year round, and arranged so that it may be so without draught ; the head of the bed should be away from a wall ; and the best bed on which to lie is a hair mattress, covered with a sheet and a blanket, and supported upon a chain stretcher. In some cases a little food taken just at the time for sleeping is an efficient soporific. You may often observe that the good effects of a little nourishment—a cup of cocoa or a small piece of dry bread, taken upon getting into bed or upon awakening after a slumber which is too short for a night's rest, are most happy. You may usefully remember that sleep may often be induced by the temporary application of cold to the head or to the general surface of the body. A person who has been lying awake will often fall asleep at once upon regaining his bed after getting out of bed and sousing his head, neck, and hands in cold water, or after following

Charles Dickens's plan of standing at his bedside until he feels chilly, and thereupon shaking up and cooling his pillows and bedclothes, and then getting into bed.

In the toxic kinds of insomnia we must especially endeavour, as I have already suggested to you, to act upon the maxim, "*Cessante causà, cessat et effectus.*" We must stop or lessen the consumption of tobacco, alcohol, tea, etc., as the case may be. A discussion of the treatment of gouty insomnia, and of the sleeplessness arising in some chronic kidney diseases, would involve a consideration of the whole question of the therapeutics of the maladies upon which these forms of wakefulness depend. Senile insomnia is very obstinate. Perhaps in the bromides, with full doses of hop or henbane, we have the most efficient and least harmful medicinal means of relief; while the promotion of sleep may be accomplished by an intelligent combination of some of the non-medicinal measures to which I have referred.

III.

THE CURE OF GASTRALGIA.*

Pain of gastralgia.—Importance of negative diagnosis.—Romberg's description of a gastralgic seizure.—Temperamental and sexual associations.—Clinical cautions concerning it.—Exhibition of arsenic.—Counter irritation.—Diet.

GASTRALGIA is a very painful malady. It is a disease which our skill can surely distinguish and which our art can cure, and cure quite and quickly, given an accurate diagnosis of it, followed by the skilful administration of arsenic, with free and full feeding of the patient, and the application of judicious counter-irritation of the skin overlying the painful part. I do not propose to-day to attempt a complete exposition of the nature and cure of gastralgia. I desire to draw your attention to some salient features

* A Clinical Lecture: published in *The Lancet*, August 13th, 1887; lately revised and extended.

of practical import in the definition, etiology, symptomatology, and diagnosis of the disorder, and especially to point out to you a means of treatment in which I have found confidence, based upon a long and frequent experience of satisfactory results.

Gastralgia is a very painful affection. The pain has marked characteristics as to position, duration, and onset, and as to its sexual, constitutional, and temperamental associations. The disorder has been variously called gastralgia, cardialgia, and gastrodynia. The nomenclature of the Royal College of Physicians authorises the last name, and it gives "stomach-ache" as a popular synonym. The malady is usually held to be a neurosis, affecting the gastric nerves. According to Dr. Leube, gastralgia is limited essentially to the sensitive sphere of the gastric nerves.* That the disorder is a neurosis is not quite proven—indeed, it is scarcely demonstrable. But the idea is a good "working hypothesis," which I commend to you. Romberg distinguished two forms of gastralgia : one, which he called gastrodynia neuralgica, he held to be a

* Von Ziemssen's Cyclopædia.

hyperæsthesia of the gastric branches of the pneumogastric nerves ; the other, which he called neuralgia cœliaca, he regarded as a hyperæsthesia of the solar plexus. Although Romberg has indicated what he thought to be the signs and conditions upon which a clinical differentiation of these varieties of gastralgia might be established, I agree with Niemeyer that in a given case it cannot be determined by any methods of clinical investigation whether the patient's pains occur in pneumogastric or in sympathetic distribution. As Henoeh has taught, although the distinction may rest upon a correct theoretical and anatomical basis, it is one which is inapplicable and worthless in practice.* It has been objected that the term gastralgia is unscientific, because it is only the name of a symptom. In practice, however, and especially in private practice, we meet with many cases for which I know of no other name ; and I apply the name to a clearly conceived and clearly defined condition. I call a case one of gastralgia in which pain, deep-seated and paroxysmal, in or about the stomach, of a neuralgic or quasi-

* Niemeyer : Text-Book of Practical Medicine.

neuralgic character, is the leading symptom. But this statement is inseparable from the following important qualification. Pain of the character and position described can only be regarded as that of gastralgia when it is unaccompanied by marked evidences of gastric or gastro-hepatic catarrh, and when, also, it is wholly unaccompanied by physical signs of structural disease either in the stomach or in its neighbourhood. The latter part of this definition involves an essential and a negative conclusion. A negative conclusion, of course, in any case is proverbially difficult. Such a conclusion should only be formed in a supposed case of gastralgia after a complete examination of all the circumstances. Further, a diagnosis of gastralgia should only be held in the conduct of a case of pain in the gastric region as a conclusion which is subject to frequent diagnostic revision; that is, such a diagnosis can only be continued when repeated physical exploration fails to reveal any other "coarser" interpretation of the patient's suffering. I desire to impress this last statement upon you as an important clinical caution, which you must especially remember when your patient is a man at or beyond middle life. In such a

person the danger of mistaking a graver and more material condition for gastralgia is especially imminent. The diagnosis of gastralgia is one which should never be lightly made, nor negligently maintained. Pain in the gastric region, you should always remember, may long appear to be simply gastralgic—that is, independent of any local organic basis—when the appearance of a tumour, or the discovery of an aneurismal pulsation, or a sudden gastric or intestinal hæmorrhage may prove a diagnosis so comparatively favourable to be tenable no longer.

Romberg's short and vivid description of an attack of the severest gastralgia has been accepted as classical. Let me read it to you. He wrote :—"A violent contracting pain at the pit of the stomach supervenes suddenly, or after being preceded by a sense of oppression ; it generally extends to the back, there is a sense of fainting, the face is fallen in, the hands and feet cold, and the pulse small, cramped, and intermittent. The pain attains such a pitch as to cause the patient to scream out. The region of the stomach is either swelled and distended like a ball, or, as is more frequently the

case, it is drawn in, and the abdominal parietes are tense. It is common to find pulsation at the epigastrium. Pressure is not only well borne, but the patient frequently forces the pit of the stomach against some firm object, or compresses it with his hands. Sympathetic sensations occur in many instances in the thorax, under the sternum, or in the pharyngeal branches of the vagus nerve, while they are seldom met with in the superficial parts."* That is Romberg's account of a typical and violent seizure of that form of gastralgia which he called cœliac neuralgia or paroxysmal hyperæsthesia of the solar plexus. You may accept his clinical portrait as accurate, although it is doubtful whether he was correct in localising the pain solely in nerves of the sympathetic system. Under the heading of gastrodynia neuralgica you will find in Romberg's excellent book a faithful clinical description of the milder cases of gastralgia, or "attacks of painful sensations in the stomach," especially as they are manifested in association with the nervous temperament, and with the reflex expressions of sexual irregulari-

* Romberg's "Nervous Diseases of Man." Translated for the Sydenham Society by Sir Edward Sieveking, M.D., etc.

ties in women. I have ventured from my reading and clinical experience to form the opinion that Romberg did not describe two distinct diseases under the several names of cœliac neuralgia and neuralgic gastrodynia, but merely one and the same affection, which I have been accustomed to call gastralgia, as he met with it in different degrees of severity. Of course a dual interpretation of painful neuralgic affections in the gastric region has an anatomical basis in the dual nerve supply of the stomach—namely, in the innervation of the organ by nerves of the sympathetic system, and also by the vagus. But, truly, in the words of Leube, “in the present state of uncertainty with regard to the mode of action of the gastric nerves, especially with regard to the conditions of sensation, and in view of the anastomotic connections between the vagus and the sympathetic in the stomach, such a division of cardialgia appears to be both theoretically and practically untenable.”

Gastralgia may occur at any age. It is rare at the extremes of life. It is rarer in children than in old people. It is most commonly met with in early middle life. Like all neural-

gias, it follows hereditary constitution, and is especially associated with the nervous temperament. I advise you to study temperaments. In them you will find many clues to morbid tendencies. Temperaments denote distinct types of physical form, of habits, and of capacities. A man of nervous temperament is mostly slightly built, and he is generally in a hurry. He is hypersensitive to all influences, and to pain amongst them. All his movements are quick, and he has a strong tendency to "fidget" with his ideas or with his extremities. His speech betrays him: he talks volubly, abruptly, and earnestly, often splitting up his phrases, or recalling and correcting them, and especially modifying qualifying words.*

As in all neuralgias, women are more liable to gastralgia than men. As, also, in all neuralgias, the manifestation of gastralgia is favoured by every condition which reduces the vigour of a patient's "general health." Asthenia sharpens neuralgic pain, and favours its development and persistence. Gastralgia is a frequent neuralgic development of hysteria; and,

* I have given a fuller account of the nervous temperament in the chapter on the causes of insomnia.

in women who are not hysterical, its incidence is often determined by the prostration of anæmia or by the exhaustion which arises from prolonged uterine discharges. In men gastralgia may be a consequence of sexual excesses or of masturbation. All these circumstances must be remembered and dealt with in the causal diagnosis and effective treatment of the disorder.

The diagnosis of gastralgia is usually not difficult. Pain is the leading symptom. When we are satisfied as to the genuineness of pain in the region of the stomach, its correct interpretation largely depends upon an accurate appreciation of various diagnostic data, *per viam exclusionis*. I cannot deal exhaustively with this part of the subject to-day. I desire, however, to give you these three cautions, which I have learned in practice, namely:—(1) Gastralgia is not a wasting disease. (2) It is not safe to diagnose cancer of the stomach until you can, to speak colloquially, feel the cancer; that is, until you can appreciate by your touch a local tumour which you are justified in regarding as a cancerous growth. (3) Do not diagnose ulcer of the stomach if you have not evidence of bleeding from the stomach, either

in hæmatemesis or in melæna, or in both of them. You may take it as a clinical truth, as the late Dr. Wilson Fox clearly insisted, that pain arising in the stomach when the organ is empty, and relieved by the ingestion of food, is almost diagnostic of its nervous origin and nature.* Sometimes the pain of ulcer or cancer of the stomach may for a time appear to be relieved by taking food, but such a condition is highly exceptional. There is sometimes a kind of gastric "sinking," even amounting to craving for food, in gastric catarrh, and with greater rarity probably in gastric ulcer; the local discomfort is not, however, relieved by feeding, but, on the contrary, usually made worse. There is another diagnostic sign of great importance in the recognition of gastralgia. It is this: firm pressure over the region of the stomach relieves the local pain. Some patients find this out for themselves, and press a closed hand or the upper rail of a chair strongly against the epigastrium, and so find relief.

My chief object in drawing your attention to the subject of gastralgia is to explain to you

* Reynolds's System of Medicine.

(a plan of treatment which I have found very successful. I can tell you of a drug which cures gastralgia. Before you prescribe it, however, you ought to find out if there be any prominent pathological concomitants or causal antecedents of the disorder, and to deal with them. Anæmia, sexual excess, overwork, work under wrong conditions, uterine discharges, masturbation,—all must be appropriately met. But for the cure of the gastralgia something more is usually necessary. Of all the directly therapeutic results in medicine with which I am acquainted, one of the most demonstrable is that which can be produced by the suitable exhibition of arsenious acid in uncomplicated gastralgia. I give one-twenty-fourth of a grain of arsenious acid, made into a pill with two grains of extract of gentian, thrice daily, between meals. The use of this remedy must be continued for a few weeks. In a case of moderate severity no other medicinal treatment is necessary. The gastralgic pains become less frequent and less severe, and recovery is steadily and surely attained. In severer and more “obstinate” cases some form of counter-irritation to the epigastrium must be used,

and used sometimes for several days, or weeks. In the less severe of these cases I usually employ a rubefacient liniment of ammonia, or of ammonia and ethereal tincture of capsicum, well rubbed in by the hand, over the epigastrium, for five or ten minutes at a time, once or twice daily. Here is a formula for a good liniment of this kind :—

R. Ol. Cajuputi, ʒj.

Tinct. Capsici Æther., ʒiij.

Lin. Camphoræ Ammon., ʒiv.

Misce, ft. lin.

In still severer cases I use severer counter-irritation, by the employment of an ointment from this formula :—

R. Pulv. Ipecac., ʒss.

Lin. Crotonis, ʒss.

Adipis, ʒj.

Misce, ft. ung.

Of this ointment a portion of the size of a filbert should be rubbed into the skin of the epigastric region, once daily, for as often as may be necessary.*

* I learned the use of ipecacuanha as a counter-irritant from Neligan's "Medicines, &c."

In severer cases vesication by a fly-blister is of service, and the blistered surface should be kept raw for some days or weeks by means of a daily dressing of savin ointment. In the severest cases a seton in the skin of the epigastrium may be employed, and it is an excellent chronic counter-irritant. But you must not rely upon this treatment alone. Every hygienic adjuvant which tends to raise the strength of the patient is of high value in the cure of gastralgia, as of all neuralgias. I especially advise you to make sure the sufferer feeds well and fully. The diet should be generous. A "dyspeptic" regimen makes a case of gastralgia worse. When you are satisfied there is no, or but slight, gastric catarrh in the gastralgia of a fairly vigorous adult, you should direct a dietary after this plan:—Breakfast: bread-and-butter or dry toast, with some fresh white fish, or some cold chicken or game, or a mutton chop, with a breakfastcupful of cocoa or weak tea or coffee. Dinner (1 P.M.): fresh beef or mutton, with bread, potatoes, cooked green vegetables, a fruit tart or a farinaceous pudding, with a glass of light bitter ale. Tea (at 5 P.M.): bread-and-butter or dry toast, with a small

cupful of cocoa, tea, or milk-and-water. Supper (not later than 9 P.M.): white fish, or some cold chicken or game, or a little cold meat, with bread, and a glass of ale. The dietetic restrictions which are proper in cases of gastric catarrh, gastritis, atonic dyspepsia, dilatation of the stomach, and gastric ulcer are not suitable for cases of gastralgia. In gastralgia, indeed, such restrictions are usually very harmful. Gastralgic patients have come to me who have been getting worse and worse upon a restricted "dyspeptic" dietary; as they have become worse such restrictions have been increased improperly. In such cases I have at once given a full diet, with the happiest results. For a patient who has gastralgic pains judicious boldness in feeding is often very beneficial. Such patients are not slow to learn this for themselves. Trousseau's caution that we should never advise what a patient should eat without knowing what he does eat, is shrewd and sound. Let me advise you never to assume a patient is dyspeptic because he has pains in his stomach.

IV.

INSPECTION AS A METHOD OF PHYSICAL DIAGNOSIS IN DISEASES OF THE LUNGS AND PLEURÆ.*

Importance of inspection.—Methods of inspection. — Inspection from below. — Thoracic expansions.—Bulgings.—Retractions.—Movements of the chest-walls in health, in men, in women, in children.—Morbid modifications of the thoracic respiratory movements.

As a clinical observer ripens in experience, inspection continually appreciates for him in value. In time, at least, inspection takes precedence of palpation, percussion, and auscultation in particular cases of systematic physical exploration of the signs of disease and of the characteristics of health. After the employment of these other usual methods of clinical exploration, inspection

* A Clinical Lecture: published in *The British Medical Journal*, July 6th, 1901.

may be used again to confirm their evidence, or to correct or amplify it.

Inspection, palpation, mensuration, succussion, percussion, and auscultation are the six chief methods of physical diagnosis. Severally and jointly, they find their most general and widest application in the discovery and observation of diseases of the chest. I propose to make some statements concerning the inspection of the chest in disease. I assume that my hearers have a fair acquaintance with the anatomy of the thorax, the physiology of the contents of that cavity, the clinical topography of the chest, the form of the healthy chest, and the healthy movements of the chest-walls. Inspection, as a method of physical diagnosis in the case in question, simply means surveying the surface of the chest. This survey must be a skilled one, and in it, as in all visual judgments, the mind supplies more than the sense receives.

I propose to place our subject before you now only in what may be called its broader outlines; its finer lines and fuller details will be filled in by your later work.

Inspection enables us to judge of the size and of the shape of the thorax, to watch the move-

ments of the thoracic parietes, to observe the beat of the heart, and to ascertain the character of the respiration. For such inspection a good light is necessary, and the surfaces to be examined must be fully exposed to view. Partial inspections really lead to no complete results, and are fertile of errors—of errors both of non-observation and of mal-observation. Inspection may be accomplished when the patient is in the erect, the sitting, or the recumbent postures, and sometimes examinations in two or in all of these postures may be pursued in turn with advantage. The sitting posture, however, is usually preferred. All mechanical restraints of the thoracic movements must be removed, care being taken that nothing hampers the free expansion of the chest.

The front of the thorax should be systematically inspected first, and then the chest should be viewed from behind, and afterwards from each side. The two sides of the chest should be compared point by point from every aspect as to their size, configuration, and movement. Sometimes valuable information is afforded by inspection from above, with the patient in a sitting posture, and by inspection from below, from the patient's feet, when he is lying down upon his back, or when

he is lying prone. Inspection of the chest from above and from below furnish us with two important developments of this method of physical diagnosis, which I designed some years ago, which I have since found of great clinical utility, and which I do not remember to have found insisted upon or taught by other clinical teachers or writers. Inspection of the chest from above is useful in the detection of hypertrophous pulmonary emphysema, of cardiac enlargement, of pleural expansion or retraction, and of pulmonary shrinkage, and of some other morbid changes. Especially is it useful in the demonstration of shrinkage of the apex of the lung. The patient is seated in a chair, the chest being stripped of all clothing, with his head a little bent forwards and downwards. The observer stands close behind the patient's chair, and explores with his eyes the outlines of the chest as seen from above, comparing in turn the outlines on each side with their correspondents on the other side, observing the shape and size of the supraclavicular hollows, and the play of the thoracic parietes in the movements of respiration, and observing other points as experience may suggest them.

Inspection from below is also very useful,

bringing out strikingly many morbid alterations of shape and movements. The patient lies flat, either prone or on his back, with the chest bare of clothing. The observer stands about a yard from the patient's feet, and "takes a sight" either along the anterior middle line of the patient's trunk or along his dorsal spine. Lateral deviations from symmetry are often more apparent in inspection from this aspect than from others. The observer, by moving his head a little, may notice a variety of striking profiles. I may also now tell you that, outside the examination of the thorax, what may be called inspection from the feet finds an excellent clinical application in many abdominal maladies, and may often give signal service as a variety of the method of physical diagnosis under our present consideration.*

Now let us examine the chief diagnostic indications given by inspection in diseases of the

* This particular method of the employment of inspection as a means of physical diagnosis, which may be called "inspection from below," and which I venture to think is an original device of my own, is useful especially in demonstrating certain morbid changes to students, in clinical teaching. My son, Dr. James E. H. Sawyer, has employed it in his training of clinical clerks at St. Thomas's Hospital and he tells me he has used it with much advantage.

lungs and pleuræ. In various diseased processes many important changes occur in the form, size, and movements of the chest, and inspection is of striking value in the detection of these morbid alterations. For teaching purposes it will conduce to clearness of exposition to speak of these morbid changes in the first place in general terms, and to explain the names which are usually used in the description of those changes. We may notice in the first place the various morbid changes in the shape of the whole of the chest, or of parts of it; then we may afterwards observe the manifold modifications of the thoracic movements which mark certain different thoracic affections.

Expansion means a general prominence of the whole of the chest, or of one of its sides. In abundant pleural effusion, in pneumothorax, and in hydropneumothorax, one side of the chest is expanded, and is evidently larger than the other side. General large-lunged vesicular emphysema produces general expansion of both sides of the chest. Such vesicular emphysema of one lung only, a very exceptional condition, may be the cause of unilateral expansion. When large-lunged vesicular emphysema exists to a greater degree on one side of the chest than on

the other, both sides are expanded, but unequally so.

Bulging is a local expansion. Bulging may appear at the lower part of the chest in pleural effusion, and it may be seen in large-lunged vesicular emphysema in the supraclavicular and infraclavicular regions. A local expansion of the chest-wall, bulging, may be due to an intrathoracic tumour, (to a neoplasm or to an aneurism), and bulging may be seen in a case of empyema when pleural pus is making its way towards the external surface. A liver which is enlarged may cause the ribs and costal cartilages under which it lies to bulge. An enlarged spleen may lead, though less usually, to a similar condition on the left side. In pericardial effusion, especially in young subjects, or when the heart is hypertrophied, the ribs in front of the cardiac region may bulge, the intercostal spaces being also widened. An aneurism of the arch of the aorta is likely at some stage of its course to be marked by bulging of the chest-wall.

Retraction, or "contraction," as the condition is often called, is the term applied to a general sinking-in of the wall of the chest on one side. Retraction usually marks either pulmonary

shrinkage from fibroid changes or the reduced pulmonary bulk which follows compression of a lung by pleural fluid, and which reduced bulk may persist in some measure after such fluid shall have been removed.

Note well the respiratory movements of the chest in health. You will observe that the capacity of the chest is increased in all directions during inspiration. This movement is most apparent anteriorly and laterally. The respiratory movements may roughly be regarded as healthy when the anterior and lateral parts of the chest dilate equally, distinctly, and moderately during inspiration.

That prince of clinical topographers, Dr. Sibson, in his great work on *Medical Anatomy*, has furnished us with a classical description of the normal movements of the chest in breathing. He says: "During inspiration the clavicles, first ribs, and through them the sternum, and all the annexed ribs are raised. The upper ribs converge, the lower diverge; the upper cartilages form a right angle with the sternum, and the lower cartilages of the opposite sides, from the seventh downwards, move further asunder, so as to widen the abdominal space between them,

just below the xiphoid cartilage, the effect being to raise, widen, and deepen the whole chest, to shorten the neck, and apparently to lengthen the abdomen. During expiration, the position of the ribs and cartilages is reversed, the sternum and ribs descend; the upper ribs diverge, and the lower converge; the upper cartilages form a more obtuse angle with the sternum, and the lower cartilages of opposite sides approximate, so as to narrow the abdominal space between them, just below the xiphoid; the effect being to lower, narrow, and flatten the whole chest, to lengthen the neck, and apparently to shorten the abdomen." I advise you to observe these changes over and over again in your observation of healthy chests, until all their details are familiar to you, until they pass securely into your unconscious cerebration, there to rest as a standard of comparison by which morbid deviations will be revealed to you with unerring certainty, and soon with immediate quickness. You will observe that the movements of the chest wall are made up, in inspiration, of expansion and elevation, and, in expiration, of retraction and depression. In either of the sexes and at different ages there are natural and characteristic modifications of

the respiratory movements. In young children inspiration depends mainly upon the contraction of the diaphragm. In them, therefore, the movement of the abdomen is relatively very marked. This type of respiration is named abdominal. The healthy differences between the respiratory movements of a man's chest and of a woman's are marked. In women, the movement of the upper part of the chest in inspiration and in expiration is more obvious than that of the lower portion; in men, the movements of the lower parts of the chest are more apparent than those of its upper portions. The healthy sexual types of the respiratory movements have been named, respectively, the superior costal and the inferior costal. You will further notice that there is nothing abrupt, nothing jerky, nothing laboured, nothing unequal between the play of the two sides of the chest in the healthy respiratory movements. These movements have an ease and rhythm and wave-like flow of their own. The eye can observe no interval between the end of the movements of inspiration and the beginning of the next succeeding movements of expiration. An interval of rest from movement can be seen at the end of each expiration, between it and the

next succeeding inspiration. This interval is relatively short. If the whole time occupied by a respiratory act and its succeeding pause be represented by 10, the value of the duration of the inspiratory movement may be estimated at 5, of the expiratory at 4, and of the pause between the expiratory and next inspiratory movement at 1. In calm breathing, in health, from 16 to 20 inspirations occur in a minute of time, corresponding to the beats of the heart in about the proportion of 1 to 4. You may notice in examining healthy chests that the impulse of the apex of the heart in its normal position is usually visible. But it is not always so. Absence of a visible cardiac beat is not necessarily a morbid sign.

The possible modifications of the respiratory movements of the chest, which are morbid signs, are numerous. Let us now notice the chief of them in a few general and particular conclusions. You will have observed that the movement of the chest-wall in healthy inspiration is a movement in which expansion and elevation are concurrently combined, occurring together at the same time, but in varying proportions, at every part of the thoracic surface. When some portion

of lung is increased in solidity, when it is relatively airless, the expansion of the corresponding part of the chest-wall is impaired, and, by contrast, the elevation of this part often becomes unusually evident. This is especially obvious upon the occurrence of what is called forced inspiration. Volition may drag the chest-wall upwards, but it cannot expand impermeable lung. This elevation of the chest-wall, without expansion or with less of it than is normal, is seen in the infraclavicular region of one or of both sides in phthisical consolidation of the pulmonary apex or apices. In large-lunged vesicular emphysema the inspiratory expansion of the lungs is less than in health, and inspiratory elevation is seen in relative and exaggerated prominence. Further, there is a healthy balance between the respiratory movements of the thorax and the corresponding respiratory movements of the abdomen, which you must observe and learn to recognise at once. This balance may be upset in disease in the forms of impairment or of excess in either direction. For instance, the thoracic respiratory movements are diminished and the abdominal are increased in pleurodynia and in the early and painful stage of pleurisy. The abdominal respira-

tory movements are diminished and the corresponding thoracic movements are increased in many diseases of the abdominal contents, in peritonitis, and in painful rheumatic affections of the abdominal muscles and of the diaphragm. These changes are involuntary. To explain them, the phrase, the "consensual avoidance of pain" has been used. In many and in various diseases the respiratory movements of the chest are diminished. These movements are diminished in disease, either locally or generally, and in varying degrees of intensity and extent of distribution, according to the position, extent, and nature of the cause, when there is a physical obstacle to pulmonary expansion, as in pleural accumulations, liquid, solid, or gaseous, in consolidation or in emphysematous distension of pulmonary tissue, in obstructions in any part of the air passages, and as in paralysis of some of the respiratory muscles.

The respiratory movements may be excessive when dyspnœa—which is a morbid state which is due to many and varied causes—compels increased respiratory effort to overcome some difficulty in respiration.

When a mechanical and substantial obstruc-

tion to the entrance of air into the lungs exists high up in the air passages—namely, in the fauces, in the larynx, or in the trachea—in the form of some morbid product, or as a foreign body introduced from without, a retraction of the lower and lateral parts of chest-walls may be observed during inspiration. This form of retraction, under the circumstances I have just sketched for you, is more marked in children than in other persons. In croup the very elastic chest-walls of a child may become extremely retracted at the sides, while at the same time the suprasternal hollow is greatly enlarged and the abdominal walls unduly protruded. Again, you will remember the normal duration of the expiratory movements of the walls of the chest as compared with that of the inspiratory movements in each respiratory act. Relatively to that of the inspiratory, the duration of each set of expiratory movements is increased whenever the exit of air from the lungs is impeded, either from impairment of pulmonary elasticity or from obstruction in the air passages.

V.

ACCENTUATION OF THE PULMONARY SECOND
SOUND OF THE HEART.*

*What 'accentuation of this sound indicates.—
Clinical import.—Prognostic value.—Thera-
peutic indications.*

ACCENTUATION of the pulmonary second sound, or, to speak more precisely, accentuation of that portion of the second sound of the heart which is produced at the orifice of the pulmonary artery, and is especially heard in the "pulmonary" as distinguished from the "aortic" area, although discovered and taught by the great Skoda in the earlier days of cardiac auscultation, is not generally recognised, if I may judge from the scanty references to it in text-books, and from my observations of its frequent neglect in the practice of stethoscopists, as one of the most striking and one of the most significant of the

* A Clinical Lecture: published in *The British Medical Journal*, March 31st, 1883; lately revised.

physical signs of disturbance in the mechanism and dynamics of the heart. It is a sign which is to be found in association, in causal relations which are tolerably clear and approximately constant, with the commonest of the organic defects of the cardiac orifices and valves, and with the commonest consequences and complications of embarrassed cardiac action. Rightly interpreted, it is a sign which traverses the whole domain of practice, for it conveys reliable indications in the three chief divisions of our relations with a patient, inasmuch as it is significant alike in diagnosis, in prognosis, and in therapeutics. Skoda, with his usual tendency to over-refinement—that frequent fault of physicians—did not grasp the simplicity and singleness of the significance of accentuation of the pulmonary second sound. He observed the physical fact, but he went too far, and in one line in a wrong direction, in his speculation upon its import. He was wrong in his teaching, for example, as Dr. Walshe has pointed out,* that the presence of rein-

* Diseases of the Heart and Great Vessels. By W. H. Walshe, M.D., &c. Fourth edition, 1873, p. 93.

forcement of the second sound in the pulmonary artery will distinguish a systolic murmur at the left apex, caused by mitral regurgitation, from a murmur of like time and site, caused by friction of the blood against roughnesses on the inner surface of the ventricle. The essence of the matter is this: Accentuation of the cardiac second sound, as heard over the origin of the pulmonary artery, is an unfailing indication of increased tension in the blood current in that vessel. In that it is this, it is a trustworthy sign, which a little consideration will enable you to understand, of a grave pathological condition; it is an unmistakable physical accompaniment of a portentous change in an area of the blood-circulation which is vital, and which is removed beyond the reach of those tactile and metric methods of exploration which are applicable in variations of tension in the systemic arteries.

In health, the aortic portion of the second sound of the heart predominates over that produced at the valves of the pulmonary artery. That is, the second sound is louder in the "aortic" than it is in the "pulmonary" area. By this statement I mean that the second sound is

louder close to the right edge of the sternum, over the lower portion of the second right costal interspace, than it is close to the left edge of the sternum over the upper portion of the second left interspace. The blood-tension may be raised in pathological states; either in the systemic circulation, of which the aorta is at the commencement, or in the lesser circulation, which passes from the right to the left sides of the heart through the lungs, and at the commencement of which is the pulmonary artery.

Whatever raises the blood-tension in the aorta intensifies the aortic second sound; whatever raises the blood-tension in the pulmonary artery intensifies the pulmonary second sound. What, then, is the clinical import of the variety of abnormal loudness of the second sound of the heart, to which I am directing your attention? Answering the question broadly, I say it is beyond dispute that an increased intensity of the pulmonary second sound is due to an increase in the blood-tension in the pulmonary artery, and that this heightened tension is due to some obstruction in the pulmonary or lesser circulation. The sign is clinically associated with organic and permanent lesions of the mitral

valves and of the mitral orifice. Either insufficiency of the mitral valves, or narrowing of the mitral orifice, adds a distinct and new physical obstacle to the flow of blood through the lesser circulation. In so far as such an obstacle elicits increased force in the contraction of the right ventricle, by so much does it raise blood-tension in the pulmonary artery, and consequently accentuate the pulmonary second sound. But, while this statement is strictly true as a generalisation, you must remember certain qualifying circumstances which may hold good in particular instances. Advanced mitral regurgitation, or advanced mitral stenosis, or both, may be present, and the pulmonary second sound may not be accentuated, but may even be less loud and clear than in health. This may arise from one of two causes, or from a frequent combination of them, namely, from failure in the power of the right ventricle, or from the appearance of tricuspid regurgitation. In the course of mitral disease, when the force of the right ventricle at last fails to compensate for the obstacle on the left side of the heart, the blood-tension in the pulmonary artery inevitably fails and falls, and with it the loudness

of the pulmonary sound inevitably declines and disappears. When also, in the course of mitral disease, the tricuspid valves, as so often happens near the end, give way, the pulmonary tension is at once lowered, and its physical sign disappears. Let me emphasise these important points by quoting some words of Rosenstein. He writes :—"When the tension decreases in the pulmonary artery, the intensity of the second sound ceases ; this takes place either when the right ventricle's force has been impaired by disease in the performance of its increased work, or when the right side of the heart is so filled by the increased stagnation that the ring of insertion of the tricuspid valve is widened, and the valve is no longer able to close the orifice."* I must also point out to you that, in comparing the pulmonary second sound with the aortic sound in cases of mitral disease, you must remember that the aortic second sound is likely to be relatively weakened by reason of the reduced systemic tension which mitral defects entail. As Dr. Walshe points out, there is a

* Rosenstein. Ziemssen's "Cyclopædia of Medicine." English Translation, Vol. VI., p. 129.

"pseudo-accentuation of the pulmonary second sound, from real weakening of the aortic second sound, through the lessened current and diminished calibre of that vessel, that follows on long-continued mitral regurgitation."* You must not fall into the error of mistaking a pulmonary second sound of normal loudness for an accentuated sound, because it co-exists with a feeble aortic sound. On this point, which undoubtedly is sometimes a difficult one in practice, you must look to an extended experience of cardiac auscultation to aid you. The recognition of variations in the tone and loudness of the heart's sounds is a refinement of stethoscopy which only long practice can develop. It is only when, by patient clinical work, you have acquired in your minds a sure standard of the characters of cardiac sounds that you can readily detect deviations from their normal intensity.

So far as I have been able to judge from my own observations at the bedside, the presence or the absence of accentuation of the pulmonary second sound, or the presence of a high or of

* Op. cit., page 100.

a low degree of such accentuation, is valueless as a differential sign in itself in the diagnosis of mitral stenosis from mitral insufficiency. I know this statement is opposed to the teaching of some physicians and of some writers of acknowledged authority in cardiac diagnosis. Both varieties of mitral disease, whether they exist singly and pure or howsoever they may be combined, impose a morbid obstacle to the passage of blood from the right to the left side of the heart, and tend, *pro tanto*, to increase the blood-tension in the pulmonary artery. So long as this obstacle is met by a compensating increase of force in the contraction of the right ventricle, so long is the pulmonary second sound of more intensity than in health. The presence of such accentuation is not a sign which distinguishes one form of mitral disease from another, but it is a sign common to mitral lesions in general, which rises and falls in direct proportion to the vigour of the right ventricular systole. When, in the backward march of the results of a mitral lesion, the saving force of the right ventricle becomes impaired by dilatation of that ventricular cavity or by degeneration of its muscular walls, the pulmonary second sound loses its accentuation,

and the sound may become almost or quite inaudible.

You will now be able to appreciate the help which may be gained in the diagnosis, prognosis, and treatment of a given case of organic disease of the mitral orifice or valves, from observation of the condition of the second sound in the pulmonary artery. Stating the case broadly, it may be said with approximate truth that mitral valvular defects are generally results of acute endocarditis. Of such results, they are usually both immediate in time and permanent in duration. Once established, the affection of the valves or orifice becomes a permanent defect, which never grows less, but which rather tends, by the organisation and contraction of inflammatory exudations, and by other well-known consecutive changes, to become more and more pronounced as time goes on. From the date of the endocarditis which first damaged the heart, there occurs a variable period of practically good health, or of quasi-health, but slightly impaired by certain of the less pressing signs of cardiac embarrassment. This period may vary in length from a few weeks or months to a few or many years, being determined by a

variety of variously combined circumstances, such as the extent of original mitral damage and the degree of subsequent compensation, and the age, mode of life, social position, and habits of the patient. But, whether this period be short or long, there surely comes, sooner or later, an ultimate or penultimate stage, marked by failure of compensation and by dropsical complications, leading on to death.

Accepting this brief outline as a rapid sketch of the usual progress of mitral affections, let us answer this question:—What is the usual state of the pulmonary second sound in the progress of such a case? When the mitral disease arises, that is, from the time acute endocarditis so affects the mitral orifice or valves as to set up a physical obstacle there to the normal progress of blood through the heart, the pulmonary second sound becomes accentuated, but only slightly so, for the most part, at this early stage. During the second period of quasi-health, that is to say, from the time of convalescence from the acute endocarditis until the onset of the latter secondary complications consecutive to the mitral defect, the pulmonary second sound remains only slightly reinforced. You

will generally find it as loud as the aortic sound, or a little louder, but not very markedly intensified. But towards the end of this second period, when the pulmonary tension is nearing the point when it will overcome the compensating force of the right ventricle, the pulmonary second sound becomes very distinctly accentuated, and attains its maximum development. The sign is at this time of grave portent, for it is the sure index of an extremely heightened tension in the pulmonary circulation, which is not likely to be borne long; it is an unfailing sign that the pulmonary circulation is only maintained by an increased expenditure of force by the right ventricle, which cannot long be kept up. At this point a straw breaks the back of the labouring camel. A little added difficulty to the circulation through the lungs, which usually comes as a bronchial catarrh, which would be trivial under some other circumstances, and the next, the ultimate or penultimate, stage of mitral troubles is ushered in. Compensation fails, and with it falls, *pari passu*, the accentuation of the pulmonary arterial sound. With failing compensation, viscera and surface become engorged with blood, anasarca

gradually develops, and dropsical exudations begin to gather in the serous cavities.

This is the stage at which you often see patients admitted to my wards. With rest, good and carefully adjusted evacuants, and, above all, with digitalis, our great heart-restorer, many improve, lose the later complications of their mitral disease, revert to the second stage of quasi-health, which I have been describing, and return to their occupations. As they improve, as rest, suitable food, evacuants, and digitalis do good, you may notice the pulmonary second sound, which had waned before, wax strong again, surely marking the recovery of compensation in the propulsive power of the right ventricle, which is the essential factor in the patient's relief. Here observation of the pulmonary second sound is of inestimable service. With a rising sound, our treatment is doing good, and our patient is making progress towards recovery.

But the complications of this later stage of mitral disease, unhappily, cannot always be removed even once; and if removed once, or twice, or thrice, or oftener, there surely comes a time when all our remedies are at last of little

or no avail. Be our treatment never so patient and skilful, the patient's condition remains stationary, or goes on from bad to worse. Here the compensating power of the right ventricle is finally and irretrievably exhausted; it is past all repair. Here the pulmonary second sound never rises under our treatment, but remains feeble to the end. Its continued feebleness, in the presence of dropsical complications, and in spite of our best therapeutic efforts, is a sure sign that the end is not far off, and that the patient is suffering his last illness.

In the congestive and dropsical complications of advanced mitral disease, I have often proved the therapeutic efficacy of a well-known combination of digitalis, squill, and blue pill.

Here is the formula for this excellent prescription :—

R. Pulv. Digitalis, gr. j.

Pulv. Scillæ, gr. j.

Pil. Hydrarg., gr. j.

Conf. Rosæ Gall., q. s.

Ft. pil. One to be taken thrice daily, between meals.

VI.

FLOATING KIDNEY.*

Cases of floating kidney established by post-mortem examinations.—Physical signs.—Case.—Causation of floating kidney.—Frequency in women.—Comparison of anatomical relations of the kidneys.—Symptoms.—Treatment.

FLOATING kidney is a substantial reality, and one which must always be remembered in abdominal explorations. Its existence has been abundantly established by post-mortem examinations.

Some years ago a committee of the Pathological Society of London, consisting of Dr. Hare, Dr. Bristowe, Dr. Wilks, Dr. John Williams, and Dr. Wickham Legg, was appointed "to inquire into the matter of displaced, movable, and floating kidneys." From the report of this committee,

* A digest of two papers: Floating Kidney, *Birmingham Medical Review*, July, 1872; Remarks on Floating Kidney. *Ibid.*, October, 1883; lately revised and extended.

which was published in 1876,* I quote the following paragraph: "Cases of undue mobility of the kidney verified by examination after death have been several times recorded. One specimen was brought before our society sixteen years ago by Mr. Durham.† Dr. Priestley has described a case, under the care of Sir James Simpson, in which after death the peritoneum was found reflected over the posterior surface of the right kidney, thus allowing great motion on the right side.‡ Other instances have been recorded by Mr. Adams,§ Dr. Iago,|| in which the state of the kidney was diagnosticated during life and verified by examination after death, Dr. Sawyer,** Girard,†† Urag,‡‡ and others."

A floating kidney is a movable kidney, and something more. For a clear definition of

* Transactions of the Pathological Society, Vol. XXVII., 1875-6.

† Durham, Transactions of the Pathological Society, 1860, Vol. XI., p. 142.

‡ Priestley, *Medical Times and Gazette*, March 14th, 1857.

§ Adams, *Ibid.*, p. 651.

|| Iago, *Ibid.*, 1872, Vol. II., pp. 328 and 409.

** Sawyer, *Birmingham Medical Review*, 1872, p. 120.

†† Girard, *Journal Hebdomadaire*, 1836, p. 445.

‡‡ Urag, quoted by Fritz. *Arch. Gen. de Med.*, 1859, p. 167.

this distinction we are indebted to Sir William Jenner. "A movable kidney is one thing; a floating kidney is another. . . . A floating kidney is a kidney that has a mesentery—a fold of peritoneum attaching it very loosely to the spine. A floating kidney, therefore, can be moved about to a considerable extent—to the extent of the length of its mesentery. A movable kidney can only be passed up and down a little; it slips a little under your fingers."*

The largest statistics concerning movable and floating kidneys with which I am acquainted are to be found in the well-known treatise of Sir William Roberts on renal diseases. From these figures, from six cases of floating kidney which I published in the first volume of *The Birmingham Medical Review*, from several cases which I have met with since in my practice, and from other instances which I have found recorded, it appears that preter-natural renal mobility may be either unilateral or bilateral, that it is more frequently unilateral than bilateral, that the right kidney has been

* Clinical lectures on the "Diagnosis of Extra-pelvic Tumours of the Abdomen." By Sir William Jenner, Bart., M.D., &c., *British Medical Journal*, January, 1869.

affected about four times as often as the left, that floating kidney is much more common in women than in men, and that, amongst women, by far the larger number of the subjects of floating kidney have been women who have borne children. These points are well established, and their clinical bearings are very important.

When we palpate the abdomen of a person presenting a floating kidney, the patient lying in a recumbent position, with the abdominal walls relaxed, we can feel a swelling, which is rounded, smooth, of the size and shape of a kidney, and which we can move in various directions, the movement being free and peculiarly slippery in its character. All the borders of the tumour can usually be easily defined by the fingers: the inner concave edge of the swelling, however, is often somewhat obscured. The displaced organ usually occupies a diagonal position, from above downwards, lying just below the free costal border, midway between the umbilicus and the last rib. The swelling can be readily moved in various directions; but it is most movable in a direction forwards, downwards, and towards the middle line; and next most movable in an opposite direction, namely, upwards, outwards,

and backwards. The position of the tumour is affected by the position of the patient, the swelling descending when the upright posture is assumed, and falling towards the right or the left, according to the inclination of the body.

The respiratory movements, too, influence the position of a floating kidney. When the patient is lying down a deep inspiration may be necessary to bring the tumour forwards, so that we can feel it. Sometimes pressure on the renal region behind will suffice to bring a floating kidney forwards; sometimes pressure alone, and a deep inspiration alone, alike fail to do this, and both together are needed to bring the organ into prominence in front. The displaced kidney can generally be restored with the fingers to its normal position, but it usually falls forward again when pressure is removed. Cases in which both kidneys "float" are comparatively infrequent. In hospital and private practice during thirty-five years, I have met with only two patients who had both their kidneys floating freely. In one of these cases I could easily bring the two organs forward at the same time, and maintain their concave margins in contact in the middle line of the abdomen.

An opportunity of verifying or of correcting, post-mortem, a diagnosis of floating kidney occurs very rarely. The following is the only instance in which such an occasion has happened in my own experience :—

Early in the year 1870 I examined Mrs. Mary Ann H., aged 35 years ; I saw her in consultation with my friend the late Dr. Hickinbotham, of Nechells. The patient was a spare woman, rather anæmic, and of nervous temperament. She had had seven children ; her labours had been tedious, but natural. For six years she had suffered pain in passing her urine, with a constant desire to micturate. The urine was turbid, containing pus and phosphates ; it sometimes contained a little blood. Sometimes the pain was very severe, and then she frequently passed some shreds of membrane in her urine, and occasionally this appeared in rolls as thick as a straw. After the passage of these substances she was usually better for several weeks. A sound introduced into the bladder indicated excessive tenderness at one spot. A tumour, having all the characters of a floating kidney, was found in the abdomen, midway between the umbilicus and the anterior superior spine of the right

ilium; this could be freely moved upwards, it could be easily grasped, and handling produced neither sickness nor pain. I regarded the pus as renal in its origin, and I suggested the existence of a calculus, with consequent pyelitis, in the floating kidney.* This woman died a few weeks afterwards, and Dr. Hickinbotham exhibited the right kidney at a meeting of the Pathological and Clinical Section of the Birmingham Branch of the British Medical Association, held November 25th, 1870. The following account of the case is taken from *The British Medical Journal*, December 24th, 1870:—

“ Dr. Hickinbotham showed a specimen of abscess occurring in a movable kidney. The woman from whose body the specimen was taken had repeatedly suffered from great pain in the region of the bladder, with difficult and painful micturition; the urine being loaded with pus. She had never had any pain in the kidney itself until about fourteen days before death, when acute inflammatory symptoms came on, and, in spite of treatment, she sank and died on the 17th of September.

* I was indebted to Dr. Hickinbotham for the history of the case.

The post-mortem examination showed general inflammation of the whole peritoneum; and the right kidney, which lay midway between the umbilicus and the anterior superior spine of the ilium, was completely riddled by abscesses. The ureter was dilated and thickened. The bladder, except near the opening of the right ureter, was healthy."

The production of a floating condition of the kidney is an effect which is the result, doubtless, of the concurrence of several causes. Oppolzer thought that the affection is usually congenital, and this view seems to have been suggested by the lengthened condition of the renal vessels which has been usually found in these cases after death; this opinion, so far as my own reading extends, does not appear to have been fully shared by other writers on the subject. If the abnormality were congenital, it would be difficult to account for the disproportionate frequency of its occurrence in females. Cruveilhier thought the practice of tight-lacing mainly contributes to the production of this affection.

In the paper by Sir William Roberts which I have before alluded to, child-bearing

and tight-lacing are given as the most probable predisposing causes of the affection. "Becquet has proposed a somewhat novel theory for the production of movable kidneys in women. In the cases encountered by him, there was a striking coincidence of time between the displacement of the kidney and the menstrual period; and he was led to believe that the kidney became congested and tumefied at these periods, and that displacement was the consequence of its increased volume and weight."* More or less rapid emaciation, occurring in persons who have previously been corpulent, has been considered, and with reason, to favour or of itself produce displacement of the kidney, by removing the fatty cushion which normally invests and supports the organ, and helps to retain it in position. Such a mode of causation probably existed in the case published by Mr. Adams.

There is abundant evidence to show that a blow or a violent concussion of the body may be the determining causes in some cases. Dr. Fleming attributed the mobility of the kidney in one of his cases to mechanical injury. Dr.

* Urinary and Renal Diseases, by Sir W. Roberts.

Roberts quoted two cases, related by Henoch : in one the right kidney became movable after a blow on the right loin ; in another, in the case of a military officer, both kidneys became movable after a fall from a horse.

Many, perhaps by far the larger number, of the subjects of floating kidney are women who have borne children. All the examples which have fallen under my own notice have been observed at some period after child-bearing. To what extent a difficult and protracted labour may be concerned as a cause, I am unable to say. The powerful and prolonged contractions of the diaphragm which are incidental to such a condition, would, doubtless, favour displacement of the kidneys. I think, however, the circumstances which determine a liability to this affection arise rather as a result of the sudden removal of the pressure which the distended uterus exercises on the kidneys, in common with other organs within the abdomen. The tendency to falling forwards of the viscera, as a result of the impaired support afforded to them by the abdominal walls, in a woman who has borne children, appears likely to contribute also to the production of floating kidney. Feeble women, with lax

and atonic tissues, are probably more prone to this abnormality than those who are more robust.

The cause of the disproportionate frequency of a floating condition of the right kidney, as compared with the left, is to be found, doubtless, in the difference between the anatomical relations of the organs on the two sides of the body. Cruveilhier, as quoted by Roberts, observed :—
“ If the left kidney is not so frequently displaced as the right, that is owing to the fact that the left hypochondrium, occupied by the spleen and the great end of the stomach, bears the pressure of the stays with much more impunity than the right.” We must remember, also, that the kidneys are moved a little by the respiratory movements. “ The right kidney,” wrote Sir William Jenner, in the admirable lectures which I have already quoted, “ is more depressed during deep inspiration, than the left, probably from its relation to the liver.”

The pressure of the liver—the pressure of its weight and the pressure of its diaphragmatic movement—contributes, unquestionably, to render the right kidney more liable to displacement than its fellow. The renal vessels,

too, are usually a little longer on the right side—the artery especially—than those on the left; and we may observe that the ascending colon is not so closely applied to the right kidney, as the descending portion of the large intestine is to the left. The chief support of the spleen, the costo-colic ligament, (the band of folded peritoneum which passes from the left angle of the transverse colon to the abdominal wall, opposite the last rib), helps in some small degree, perhaps, to increase the fixity of the left kidney.

Healthy floating kidneys bear manipulation exceedingly well. Some authors allude to the production of a sickening sensation when the tumour is squeezed. I cannot say that I have observed this; but firm pressure, undoubtedly, causes pain.

The subjects of floating kidney sometimes experience a feeling of dragging, uneasiness, and of weight in the abdomen, which they refer to the tumour, and which may be increased by standing for some time, or by exercise, or which may never be felt except under such circumstances. Sometimes movements of the displaced organ are perceived by the patient, and then they may give rise to delusions, which we find great

difficulty in dispelling. In one of the cases I have given, the patient persisted, in spite of all we could say to the contrary, in believing the movements to be those of a "child." Sir W. Roberts quotes a similar case.

Unless a displaced kidney be the seat of structural disease, preternatural mobility of the organ is not attended by urinary abnormalities. In uncomplicated cases the secretion of urine is always healthy, neither is there any interference with micturition. The irritating condition of the urine was quite a sufficient cause for the frequent desire to empty the bladder noticed in Dr. Hickinbotham's case.

The dragging and uneasy sensations I have described may be removed or relieved. Sometimes they are completely removed by wearing a tolerably tight, elastic, abdominal bandage. Anæmia, or dyspepsia, or disorders of the uterus, must not be overlooked, and suitable means must be adopted for their removal. Treatment of a tonic nature may be pursued with great advantage. When the abdominal walls are weak and relaxed, shower or douche baths, rest, and chalybeates are indicated, and the development of the muscles of those walls by suitable physical exercises.

may be useful. Useful, too, may be a course of daily faradisation of these muscles. All constriction of the lower part of the thorax, by stays or waistbands, or the like, must be avoided, and petticoats — should be suspended from the shoulders rather than from the waist. The action of the bowels must be carefully regulated ; constipation, and the consequent straining, invariably aggravate renal displacements. Violent exercise, such as riding on horseback or dancing, should be prohibited. Rest and good food do much for our poorer patients.

The abnormality of a floating kidney, of itself, can never shorten life ; it usually persists for an indefinite period. It is necessary that we should clearly understand this curious irregularity, and be able to form a correct diagnosis of it, that we may remove all alarm from the mind of the patient, and prevent the adoption of injurious measures of treatment. The majority of the cases need no treatment whatsoever. Some of my medical brethren have taught, and have taught, as I think, erroneously, that a floating kidney is a cause, and a frequent one, through the medium of reflex nervous influences, of a variety of morbid conditions, and especially

of some abdominal pains, such as we usually ascribe to primary gastro-intestinal disturbances, or regard as gastralgie pains arising upon a neuralgic basis. I have never seen a case in which such reflex effects appeared to occur. Some physicians, when they discover a floating kidney, prescribe a padded belt, to be worn with the intention of keeping the wandering organ in its normal position. I never prescribe such a belt. I do not think such a belt can accomplish the object of its employment, and the pressure of it may be harmful. Some surgeons, when they think a floating kidney is the seat of pain which calls for surgical interference, perform a serious surgical operation, with the object of fixing the erring organ by stitches to its normal bed. I have never met with such a case in practice. If such an expression be allowable, a structurally healthy kidney which is floating is the only clinical condition which I do not diagnose, so to speak. When I find an abdominal exploration is leading me to such a diagnosis, I stop my examination, that I may not draw the attention of the patient to a condition which is practically negligible.

THE CURE OF HABITUAL CONSTIPATION.*

VII.

Difference between constipation and intestinal obstruction.—Definition of constipation.—The human fæx.—Cure without drugs.—Rules of practice.—Causes.—Regularity of effort in defæcation.—Habitual constipation in women.—Position of the body in defæcation.—Advantages of an erect carriage of the body.—Bodily exercise.—Diet.—Drugs.

I PURPOSE to offer to you some considerations and observations upon habitual constipation, and especially upon its successful prevention and upon its successful treatment. I venture to do so because the details upon which I shall touch have especially and long engaged my attention as a physician, and because I hope I may be fortunate enough to lead the way to a discussion from which we may all reap substantial profit. It is not my intention to attempt anything like

* An Address delivered before The Leicester Medical Society, December 7th, 1900 ; lately revised and rewritten.

a complete examination of the whole question of constipation, much less of intestinal obstruction. The subject, if treated systematically, could not be dealt with, even in a cursory manner, within the limits of the time at my disposal. You know that the literature of the subject is very extensive, that it reaches back to the earliest records of medicine, and that I could not give a summary of it within the compass of a readable paper; you know that intestinal lesions, and especially those pathological changes which tend to fæcal accumulation and to slow fæcal passage, have shared in being subjects of the analytical precision which is the leading note of the medicine of our century, and that I could not recount their details within a single sitting of your society. Keeping to what is practical in the pathology and practicable in the treatment of some of the commoner forms of constipation and especially of habitual constipation, as I have met with them in my own clinical experience, I purpose to ask you to consider with me the progress of our art in one of the most important and most striking departments of its usefulness.

We must avoid a common confusion of terms in the use of the familiar words constipation

and intestinal obstruction. It is not strictly accurate to speak of intestinal obstruction, as some writers have done, as an exaggerated, an ultimate, form of constipation. It is quite true that some of the worst and most fatal forms of intestinal obstruction are usually long-marked by a prodromal constipation, as, for example, cancerous constrictions of the larger intestine. But the phrases constipation and intestinal obstruction, when properly understood, do not merely mark different degrees of a similar result. They apply to different extents of the intestinal tube. Constipation concerns the large intestine only; intestinal obstruction the whole of the intestines, small as well as large.

For the accurate diagnosis and for the intelligent therapeutics of constipation we must have a clear conception of what constipation is. Here, briefly, is a definition of it which I have long held:—constipation is slow fæcal progress in the large intestine, where alone true fæces are to be found. Intestinal obstruction is a grave disturbance of intestinal permeability in any part of the intestinal canal; it is practical impermeability of the intestines to the passage of their contents, either in the large or in the

small intestine, in any part of the bowel, from pylorus to anus. "Constipation is essentially slow progress of the fæculent mass from the cæcum to the anus."* It is this, and nothing more than this, so far as the mere position of the difficulty concerns us, albeit the pathological causes of constipation, when organic, and when such as narrow the lumen of the bowel, are apt, in their extremest developments, to determine intestinal occlusion. Coprostasis is a good old name for fæcal stagnation. Habitual constipation is more or less imperfect fæcal stagnation, between the cæcum and the anus.

What is the human fæx? This is a question very pertinent to our purpose. Let us answer it briefly, and strictly to illuminate the therapeutic issues of the subject. Our usual general idea is that a healthy human fæx is a pasty mass made up of insoluble and superfluous food, mixed with intestinal mucus, pancreatic and other glandular secretions, and moulded into a sausage-shaped form in the large intestine, with numerous secondary convexities marking the concavities of that

* This sentence is quoted from a clinical lecture on "Retention of Fæces," by Dr. Matthews Duncan, published in *The Medical Times and Gazette*, Nov. 8th, 1879.

tube. We are apt to forget that there is much evidence that fæces, besides being all that I have just stated, are, in an important physiological sense, in an important pathological sense, and in an important therapeutic sense, much more—namely, in part an excretion formed by secretion. If we recognise that fæces are in part a secretion from the blood of noxious excretory products of life and activity, the elimination of which is essential to health, and the non-elimination of which causes various sufferings, we shall understand that the therapeutics of constipation is much more important than it would seem to be, if we do not include this secretory view of the fæces in our consideration. Let me quote to you one or two sentences on this point from Dr. Headland, in his great work on the Action of Medicines. He says :—" It was some time ago supposed by many that the fæces consisted simply of those parts of the food which remained unabsorbed, and that all purgative medicines alike acted by exciting the peristaltic motion of the bowels, and causing thus the ejection of these undigested matters. Such an opinion is now rarely maintained. Although very little is known of the separate functions of the glands of the

intestinal mucous membrane, yet it is generally supposed that the faecal matters consist in great part of excrementitious substances which are separated by their means from the blood. The excretion of faeces continues when no food is taken. It is known to go on with starving men, and with patients in fever. Liebig argues for the secretion of the greater part of the faeces, on the ground that they contain nitrogenous matters, whereas all the nitrogenous parts of the food should be absorbed for the purposes of nutrition. Thus these are probably the excreted products of changes in the system, which it is the province of the bowels to separate from the blood."

The manifold errors of habits, of effort, and of diet which tend to constipation are well recognised by our profession. In the discovery of some of these, and in their timely and persistent rectification, we can cure, without drugs, many of the slighter forms of faecal retention. We should make quite sure we exhaust these measures in the treatment of every case of habitual constipation. In the slighter cases, such non-medicinal treatment is usually sufficient for a good result; in severer cases, when drugs and instrumental aid cannot be avoided, all that

well-ordered habits, well-directed efforts, and well-chosen diet can do should be regarded as the indispensable adjuvants of a more direct therapeutics.

In the treatment of habitual constipation, I have formed certain rules of practice, which my experience has abundantly confirmed. They are these:—(1) We should never leave the medicinal treatment of constipation of the bowels to our patients. (2) We should never give drugs in the treatment of habitual constipation until we find that the constipation cannot be cured without them. (3) We should never give drugs in the treatment of habitual constipation without the conjoined use of a well-selected and judicious combination of the numerous adjuvants of natural alvine relief which are at our disposal.

Now that we are engaged in the particular consideration of the therapeutics of habitual constipation, it is useful to expand our definition of the malady by the addition of some definitions of the causes of the affection. Habitual constipation is a penalty of our imperfect civilization. It is due to a habitual abstinence from emptying the rectum whenever the physiological urgency to empty it is felt ; it is also due to habitual defæca-

tion when seated upon a high seat ; it is also due to habitually diminished activity of the abdominal and respiratory muscles ; and it is also due to habitual abstinence from fruit. Each of these causes is avoidable. Each of these causes should be avoided before a drug is taken for the cure of habitual constipation.

By education, in a healthy person, the emptying of the rectum in defæcation, day by day, can become to a certain extent a regular rhythmical process, occurring at a fixed time, once in each twenty-four hours. The best time for this is after breakfast, when the stimulus of the entry of food into the stomach after the abstinence of the preceding night, aided by mental expectation, by habit, by a visit to a suitable place, and the assumption of a suitable bodily position, will very usually, and, by practice, with great regularity, excite the act of unloading the rectum and sigmoid flexure. Such an effort should always be made, day by day, at the usual time, whether the desire to defæcate be felt at the time or whether it be not so felt. But, besides this, defæcation should always be attempted whenever the local urgency for it is felt. This feeling should never be "put off." By putting it off the

irritated rectum empties itself backwards into the sigmoid flexure, and habitual constipation is caused and kept up.

I think the general experience of my medical brethren will accord with my own, in our finding habitual constipation to be more prevalent amongst women than amongst men. The causes for such greater prevalence of the malady amongst women are to be found in irregularity of effort at defæcation, in putting off the act, in relative feebleness of the abdominal muscles, in the wearing of waistbelts, and in the wearing of "stays" and corsets.

The best position of the body for successful defæcation, that is, for the complete and easy doing of the act, is the crouching position. This is the natural position, the position assumed when defæcation is attempted upon the "ground." The parts concerned in the act are then in the best position for its accomplishment, and, moreover—and this is an important consideration—the hernial openings are then guarded by their natural physiological protection, during the increased intra-abdominal tension which is a normal constituent of the act of emptying the lower bowel. A fruitless effort at defæcation when seated upon the usual high seat, (a seat

generally of the height of eighteen inches from the ground), will often be followed at once by success, if the effort be thereupon renewed in the physiological position I have described. In habitual constipation I explain these considerations to the patient, and counsel the acting upon them before drugging.

Certain habitual postures of the body favour fæcal sluggishness, or even fæcal retention in the large intestine ; namely, a slouching posture, a stooping posture, and especially that form of arching backwards of the lower dorsal and lumbar spine, and doubling up of the abdomen, which occurs in sitting "all in a heap" in a large and low "easy" chair. The habitual assumption of this last attitude leads to the development of one or more deep transverse wrinkles in the skin, running horizontally across the epigastrium. Such a position of the body embarrasses the movements of the abdominal contents in many ways, which will be obvious to the anatomist. Amongst these it tends to fæcal retardation by the production of two additional angles in the large intestine, one in the ascending colon, and one in the descending colon, by an antero-posterior bend on each side below the hepatic and

splenic flexures, respectively. The cure of habitual constipation without drugs demands that an erect carriage of the body should be cultivated habitually.*

Daily bodily exercise favours the emptying of the bowels. Such bodily exercise is a natural hygienic activity, an exertion or action of the body conducive to the keeping of the organs and physiological functions in healthiness. There are several modes of such exercise which are of direct and especial use in the cure of habitual constipation. Exercises should be selected for this purpose which tend to promote biliary flow, which bring into play the muscles of the abdominal walls, and which promote movement of those portions of the large intestine in which faecal accumulation is most apt to occur. These are the indications to be fulfilled. By keeping them in view we may arrange suitable exercises in particular cases. I will now mention certain exercises which I have found useful. Respiratory exercises are healthful in many ways, and should be performed daily, and they are useful for our present purpose. Three or four deep

* One of our medical poets, John Armstrong, M.D., wrote, in the year 1744, in his *Art of Preserving Health* :

“To lean for ever cramps the vital parts,
And robs the fine machin’ry of its play.”

inspirations in succession, each taken slowly, whilst the waist is free from constriction, taken, say, just before breakfast and just before dinner, promote biliary flow into the intestine, (and bile is the natural laxative), and promote also movement of the intestinal contents. Riding on horse-back, too, is healthful in many ways; it may be performed daily, and best before breakfast, with the effect of helping the habitual intestinal evacuation. Various gymnastic forms of drill have been well arranged for the purposes of the promotion of biliary flow and intestinal movement. These can be quickly learned from a good drill master, and they may be practised daily in the treatment of habitual constipation with curative advantage. Furthermore, it is likely that sluggishness of fæcal movement in the large intestine is most apt to occur in two places, namely, in the cæcum and in the sigmoid flexure. Fæcal movement in these parts of the bowel may be excited and promoted by movements which bring the psoas and iliacus muscles into full play. For such movements, suitable daily exercises may be pursued, such as, for example, running upstairs by taking two steps of the stairs at each stride.

The best diet for habitual constipation is a mixed diet ; that is, a diet of ordinary food taken at fixed times, without the use of any ordinary article of food being forbidden. If, with the use of such a diet, habitual constipation do not yield to habitual and suitable effort at defæcation, aided by suitable exercises, articles of food which are found to have a laxative tendency when ingested should be added to the dietary, or increased therein. Such laxative foods are found in green vegetables, in fruits, in fruit jams, and especially in orange marmalade and in honey. In the milder cases of habitual constipation a cure of the malady, without the use of drugs, follows the free ingestion of cooked green vegetables, with dinner, or the daily eating of ripe fruit after the evening meal—say, of one or two ripe apples, uncooked, or the taking of orange marmalade freely, at the end of breakfast, or with afternoon tea, or the daily consumption of honey, which last may be eaten freely on bread, at breakfast or at afternoon tea, or it may be used as a sweetener of tea or coffee, instead of sugar.*

* Honey should be pure. In our own county excellent honey, the produce of cottagers' hives, is supplied to the public under the auspices of the Warwickshire Bee-keepers' Association.

Our pharmacopœias, officinal, non-official and popular, are richer in purgatives than in remedies of any other class. I must not digress into a comparison of the relative values of our cathartic drugs, although the subject is a very tempting one. The practitioners of rational medicine have accumulated a vast store of precise and valuable information concerning the actions of purgative medicines, and this important branch of therapeutics is still growing. Each of us has his favourite cathartics; if we have tried their adoption well we should not lightly change them. For cases of habitual constipation which do not yield without drugs, my favourite remedy is aloes. I have little faith in belladonna and little in nux vomica. Aloes is especially useful in the fæcal sluggishness of sedentary persons. Properly given, the drug may be taken daily for years, without either losing its aperient efficiency or producing any but the best results. Sometimes I give one, two, or three grains of Socotrine aloes in a pill, combined with a quarter of a grain of sulphate of iron and one grain of extract of hyoscyamus, at bedtime, every night.* I find

* We are indebted to that veteran therapist, the late Sir Robert Christison, for the valuable suggestion of combining iron with aloes when we use aloes as a laxative.

out in each case the exact quantity of aloes required to produce one full alvine evacuation after the first morning meal. In this combination the quantity of aloes will need readjustment from time to time, usually in the direction of reduction.*

A perusal of a biographical memoir of the late Dr. Marshall Hall brought to my notice a favourite pill of his composition for habitual constipation.† I have modified this pill a little, and I have prescribed it with much success. Here is the formula for it as I prescribe it :—

R. Aloes Barb.,

Theriacæ,

Ext. Glycyrrhizæ,

Ext. Taraxaci,

Saponis Mollis, singulorum partes æquales.

Solve in aqua, et calore lente inspisse; deinde divide in pilulas, pondere gr. iiss. Sig. : one or two pills to be taken at bedtime.

Neligan, in reference to the use of aloes in habitual constipation, wrote :—"Christison states that the cathartic property of aloes is much increased by its combination with sulphate of iron, and that its irritating action on the rectum is counteracted by combining it with the extract of hyoscyamus; both of which statements my experience fully confirms."—"Neligan's Medicines, edited by Macnamara, 6th edition, p. 130.

Our art gives us many other useful combinations of laxative drugs, which experience in practice will suggest as the best in particular cases. No case of habitual constipation can be best treated by "rule of thumb." Each case should be skilfully investigated as to the causal relations and other associated details of the malady, and each case should be carefully diagnosed and particularly prescribed for, watched, and guided by a competent medical adviser.

* I was led to adopt this combination of aloes and iron in the treatment of habitual constipation by reading a paper by the Rev. David Bell, M.D., which was published in *The British Medical Journal*, Nov. 5th, 1870, entitled "Remarks on the Beneficial Effects of Combining Tonics with Aperients in Chronic Constipation." Dr. Bell stated in this paper that he had tried various combinations of drugs in the treatment of constipation, and had come to the conclusion that the best formula was the following:—R. Aloes Socotrinæ, extracti hyoscyami, āā gr. xij.; quinae disulphatis, gr. vj.; ferri sulphatis, gr. iv. To be well mixed and divided into twelve pills. Dr. Bell has found these pills to produce uniformly good results, without inconvenience. Dr. Kent Spender, of Bath, has kindly drawn my attention to his admirable paper on "The Therapeutics of Chronic Constipation," published in *The Medical Times and Gazette*, Feb. 19th, 1870. Dr. Spender recommends minute and frequent doses of watery extract of aloes, given in combination with sulphate of iron. He informs me he has treated cases of habitual constipation with pills of aloes and iron for very many years, with excellent results.

† Memoirs of Marshall Hall, M.D., F.R.S. By his widow. London, Bentley, 1861. p. 274.

VIII.

SOME POINTS IN THE TREATMENT OF THE SEVERER FORMS OF CONSTIPATION.*

Fæcal retention.—Case.—Enemata.—O'Beirne's tube.—Cancer.

THE ordinary symptoms of extreme fæcal retention are well known. Our experience, in the main, justifies us in expecting that such symptoms shall be acute, or subacute, at the least, in their urgency and duration; and that they shall be associated with complete temporary absence of alvine dejections, or at least with very obvious insufficiency of such evacuations, both in quantity and frequency. But we shall fall into error sometimes if we expect considerable fæcal retention always to be marked in this way. Of exceptional forms of extreme fæcal retention, I have met with two distinct varieties. In both the process of accumulation has been but slow: in one the graver signs of

* Part of a paper published in *The British Medical Journal*, November 17th, 1883; since revised.

intestinal obstruction have at last become urgently and rapidly developed, as it were as a climax; while in the other and rarer form of slowly-developed fæcal retention the condition has been chronic throughout, and the disorder has not perhaps been recognised until after a belly only distended by a dilated colon filled with fæces has been regarded as the seat of a huge tumour, the nature of which has been variously interpreted. I have known the extremest fæcal retention, filling the belly, encroaching on the thorax, and displacing the liver, lungs, and heart, presenting itself as a chronic condition, lasting for many years.

Let me quote very briefly an extreme and very instructive instance of this kind from my notebook. Some years ago a medical friend sent a case to me at The Queen's Hospital, as one of obscure abdominal tumour, which had long resisted treatment at two neighbouring medical charities, and about the nature of which he was in doubt, and desired my opinion. I found the patient a pale, ill-developed girl of fourteen. Her mother stated that, when the child was only two years of age it was noticed there was some enlargement of her belly. The child's bowels

had habitually been confined, a week or more often elapsing without the passage of a motion. The evacuations generally consisted of small portions of hardened fæces ; but, from time to time, frequent and scanty liquid stools were passed. The quantity of urine appeared to have been normal ; the appetite poor and capricious. The abdominal enlargement had gradually increased up to the time of the patient's application to me. I at once admitted the girl as an in-patient. I found she complained of occasional griping pains in the belly. She had never had any vomiting. Her motions were small in quantity and watery. The tongue was clean. There was no pyrexia. The body was fairly nourished. The abdomen was generally enlarged, and the lower part of the thorax expanded. The superficial veins of the abdomen were slightly enlarged. A solid tumour could be felt to occupy the whole of the right side of the abdomen. It had no distinct margin above, and reached, laterally, about two inches to the left of the middle line ; below, the edge of the hand could be readily passed between the tumour and the pelvis. The tumour was uniformly dull on percussion ; palpation gave the impression of a doughy

consistence, and firm and sustained pressure with the tip of a finger upon the mass produced a depression, which lasted for some minutes after the finger was withdrawn. The heart was displaced upwards considerably; its apex was found to strike the chest wall at a point one inch and a half above, and one inch to the inner side of the left nipple. The circumference of the abdomen at the umbilicus was thirty-one inches. The rectum was found to be largely distended, and filled with hardened fæces. The patient was ordered a pill, consisting of a grain and a half of Socotrine aloes, half a grain of extract of hyoscyamus, and a third of a grain of extract of nux vomica, to be taken with a drachm of sulphate of magnesia in one ounce of infusion of roses thrice daily. An enema of cold water and table salt was given night and morning. Before the administration of the first enema, I freely broke up the contents of the rectum with my forefinger and the handle of a large tablespoon, and I removed a very large quantity of hardened fæces, together with three plum-stones. On the following day, two chamber-pots were literally filled to the brim with pultaceous fæces, and the abdomen was found markedly

diminished in size. On the next day, two chamber-potfuls of fæces followed the morning injection. On the following day, three copious motions were passed. On the next day there were two free actions of the bowels, and it was noted that the abdomen was smaller and softer, and that the heart's impulse had fallen to the level of the left nipple. In three days more, the enemata were finally discontinued. Careful physical exploration failed to find any abnormal signs in the abdomen. Faradisation was ordered to be gently applied to the abdominal muscles daily. From this time the patient did well, without interruption, and was discharged fourteen days after her admission. She attended a short time as an out-patient, taking steel and an aloetic purgative, and remained well, without any fæcal reaccumulation. In this case you will notice that extreme fæcal retention, sufficient to displace the heart into an infraclavicular region, to distend the superficial veins, and to form a very large abdominal tumour, was unattended by vomiting, scanty urine, abdominal tenderness, or other local disturbance than "occasional griping pains in the belly." You will notice, too, the record of an important point in diagnosis. A large portion

of the patient's abdominal cavity was obviously occupied by some solid mass. I had to decide upon the nature of the abnormality. I found that firm and sustained pressure with the fingers over the tumour produced a depression in its mass, which lasted for some minutes after pressure was withdrawn. This very exceptional physical sign is almost absolutely diagnostic of considerable faecal accumulation. The successful progress of the case illustrates, also, the value of using together a variety of therapeutic measures. In the treatment of faecal retention, the best results are only obtainable by the adoption of a well-considered combination of remedial resources. I did not rely on only one method of emptying the distended intestine. I broke up and dug out all the excrement I could reach through the anus; and I kept up the concurrent and continued use of aloetic purgatives, enemata, and faradisation.

I am afraid our profession does not adequately appreciate the immense advantages to be derived in the treatment of many of the severer forms of constipation and intestinal obstruction by the efficient use of the enema. In France, I understand, the enema is the routine

domestic aperient. We do these things better in England. The custom of relieving slight constipation by an immediate resort to an enema has never become popular on this side of the Channel, and it is well it is so. My experience has led me to discountenance decidedly the systematic use of rectal injections in the ordinary domestic treatment of the slighter forms of fæcal sluggishness. Such cases may be treated better, and especially with less tendency to chronicity, by other means. On the other hand, however, in the severer forms of fæcal retention, we ought always to use aperient enemata, and we must take care we use them efficiently. In persons past the meridian of life, and especially in persons of sedentary habits, what may be called simple fæcal retention is a very frequent form of constipation. In such persons this form of constipation is relatively very frequent, both as compared with other varieties of constipation, and also as compared with the same form of constipation at other times of life, and in individuals of other habits. In such persons coprostasis, (a good old name for fæcal stagnation,) is especially apt to produce complete intestinal obstruction. It is in these cases,

especially, that life may be saved by enemata. I do not know any form of intestinal obstruction in which enemata can do harm. In most cases they take a chief place amongst our most potent means of doing good. In many cases which at first are unpromising, and even when the predisposing cause of the obstruction is some organic and incurable disease, we may repeatedly relieve a threatening fæcal accumulation, and long keep off a fatal fæcal stagnation, by the due use of enemata. It is, perhaps, not too much to say that enemata far surpass any other remedies in curative value in the simple coprostasis of advanced life. Within the limits of this paper I cannot particularise all the practical details of apparatus, of quantity, quality, and frequency of intestinal injection, and the various manipulative niceties of administration, concerned in the question of the therapeutic use of aperient enemata. But I would take this opportunity of affirming that in all severe cases of constipation, and in all cases of intestinal obstruction in which we use enemata, we can only administer our injections efficiently by means of the long tube of O'Beirne. Let me recommend O'Beirne's classical treatise on defæ-

cation to those who are unacquainted with it.* Than from a study of its pages I do not think I have ever reaped more practical profit from any of my medical reading. The gist of O'Beirne's book is the recommendation of the long enema tube, which for nearly seventy years has been known by his name. Never entrust the use of O'Beirne's tube to a nurse. The efficient passage of the instrument into and through the sigmoid flexure of the colon is a delicate and difficult operation, which the medical attendant ought always himself to perform for his patient. Much unnecessary detail has been taught about the composition of enemata. When we use an enema, for the purpose of clearing the bowel of fæces and flatus, the quantity of the injection is its chief quality. I am accustomed to tell my pupils that when they give an enema they should always ask themselves whether it is to be retained or returned ; if it be designed that the injection shall be retained, as in the case of a nutrient or sedative enema, its quantity can scarcely be too small. If, on the other hand, it is intended to

* New Views on the Process of Defæcation, &c. By James O'Beirne, M.D., Dublin. 1833.

move the bowels to the expulsion of their contents, the quantity of an enema can scarcely be too large. The quantity of an aperient injection is precisely so much of it as can be passed into the bowel, without undue force. For such an enema to be so large as possible is only to be large enough.

Experience in practice has taught me to add here an important caution. What, in a particular case, may appear to be simple constipation may be impeded fæcal passage through the lower bowel, due to cancerous stricture of the gut. Especially is this caution necessary when the patient is at or beyond the middle age. I have heard Professor Chiene, of Edinburgh, say, in advice to young practitioners, "Gentlemen, never lose an opportunity of passing your finger into the rectum." This is a wise caution, especially in the cases we have been considering in this and the last chapter—a sound caution for safe practice, shrewdly, if quaintly, expressed.

IX.

CLINICAL OBSERVATIONS ON INTESTINAL OBSTRUCTION.*

Varieties of intestinal occlusion.—Probabilities as to nature and site of occlusion.—Symptoms of intestinal occlusion.—Spontaneous recovery.

LONG is the list of the lesions which may determine the clinical urgencies of intestinal impermeability, and which, by causing that most grave condition, may demand from us relief if life is to be preserved. As intestinal compressions, constrictions, degenerations, displacements, distortions, impactions, obturations, and stenoses, these manifold pathological conditions have been fully described. If, with practical purpose, we translate the anatomical causes of intestinal occlusion into their clinical manifestations and history, we shall find that they fall into three fairly defined groups. *A: Causes*

* Part of a paper published in *The British Medical Journal*, November 17th, 1883; since revised.

which come into operation quite suddenly, and which lead at once to complete intestinal occlusion. Here we have sudden compressions, displacements, and distortions, as all kinds of strangulations and torsions or kinks, some cases of intussusception, especially in children, and some cases of plugging by gall-stones. *B: Causes which manifest themselves acutely, but which do not give rise to immediate and complete occlusion, although they produce very grave disturbances of intestinal permeability.* Here we have partial strangulations of all kinds, many cases of intussusception, many cases of peritonitis, and cases of partial obturation by gall-stones and foreign bodies. *C: Causes which are developed slowly and which give rise often for weeks, months, or years, to marked signs of impaired intestinal permeability, and which either lead to a series of subacute seizures of intestinal occlusion, yielding for a time to treatment, but successively increasing in severity and danger, or culminate in a single sudden and final attack of complete and unyielding obstruction, or lead to death in some indirect way, as by perforation, peritonitis, or asthenia* Here we have intestinal cancers and neoplasms generally, strictures and

stenoses of all kinds, chronic local or general peritonitis, compressions from the pressure of slowly growing tumours, and fæcal impactions and chronic fæcal retention from degenerative changes in the muscular coats of the larger intestine.* These various conditions teem with practical interest, both in the niceties of their differential diagnosis, and in the details of their varying therapeutic requirements. Into these points I cannot now enter, but I would state generally that, by a consideration of the age of the patient, of the history of his illness, of his special symptoms and physical signs and of the results of our treatment, checked by a recollection of the pathological possibilities of intestinal occlusion and some accurate knowledge of their relative frequencies, we can usually make a practically correct diagnosis, both of the particular portion of the intestine which is affected and of the pathological nature of its

* This classification is a modification and amplification of one to be found in Dr. Leichtenstern's valuable essay on "Constrictions, Occlusions, and Displacements of the Intestines," contained in Dr. Von Ziemssen's *Cyclopædia of the Practice of Medicine*. See English translation, Vol. VII., page 487, *et seq.*

lesion. I cannot, however, leave this part of my subject without reference to certain well-ascertained statistics and approximate generalisations which are of great practical importance, and which have often stood me in good stead at the bedside, in the diagnosis of the kind and place of an intestinal occlusion. Firstly, it is generally true that sudden and very marked obstructions, such as strangulations, torsions, intussusceptions, and pluggings, affect the smaller intestine, while more chronic but less accentuated difficulties of permeability, such as strictures, cancers, and intestinal degenerations, affect the larger intestine. Again, an intestinal stricture is a circumscribed diminution of the lumen of the bowel. It arises either from contraction of the mucous and submucous tissues, or from the encroachment upon the intestinal canal of some new growth from the intestinal walls. The latter process is usually cancerous, the former is usually a consequence of ulceration. "Stricture may be met with in any part of the intestine, yet it occurs in different parts with very different degrees of frequency. The published statistics of fatal cases show that its occurrence as a fatal disease in the small intestine

is comparatively rare (according to Dr. Brinton* in 8 out of every 100 cases); and that, as regards the large intestine (to quote again Dr. Brinton's figures, with which those of other writers agree pretty closely), out of 100 fatal cases, 4 are in the cæcum, 10 in the ascending colon, 11 in the transverse colon, 14 in the descending colon, 30 in the sigmoid flexure, and 30 in the rectum. Dr. Brinton calculates that stricture occurs three times in men to twice in women; and that the average age at death is $44\frac{2}{5}$ years."†

From these figures we may gather the important practical generalisation that at least four-fifths of the strictures of the larger intestine are situated to the left of the middle line of the body. Again, excluding the grosser forms of hernia, of all the different forms of obstruction of the bowel, intussusception is the one which is "most commonly attended with the presence of manifest tumour;"‡ and

* Intestinal Obstruction. By W. Brinton, M.D., F.R.S. 1867.

† Obstruction of the Bowels. By J. S. Bristowe, M.D., F.R.C.P. Reynolds's System of Medicine, Vol. III., page 74, *et seq.* 1871.

‡ Dr. Bristowe. *Op. cit.*, page 100.

further, excluding cancerous disease of the larger intestine, the discharge of blood *per anum* is characteristic of intussusception, and is generally present from the onset of the affection. Again, we have Mr. Jonathan Hutchinson's valuable generalisations, from which I select the following as being the most reliable, and therefore the most important. "When a child becomes suddenly the subject of bowel obstruction, the malady is probably either intussusception or peritonitis. When an elderly person is the patient, the diagnosis will generally rest between impaction of intestinal contents and malignant disease. In middle age, the causes of obstruction may be various, but intussusception and malignant disease are now very unusual. If repeated attacks of dangerous obstruction have occurred, with long intervals of perfect health, it may be suspected that the patient is the subject of a chronic diverticulum, or has bands of adhesion, or that some part of the intestine is pouched and liable to twist. If, in the early part of a case, the abdomen become distended and hard, it is almost certain that there is peritonitis. If the intestines continue to roll about visibly, it is almost certain that there is no peritonitis.

This symptom occurs chiefly in emaciated subjects, with obstruction in the colon, of long duration. The tendency to vomit will usually be relative to three conditions, and proportionate to them. These are, (1) the nearness of the impediment to the stomach ; (2) the tightness of the constriction ; and (3) the persistence or otherwise with which food and medicine have been given by the mouth."*

No clinical spectacle is more terrible than that afforded by a case of acute and complete intestinal obstruction. All of us, probably, have seen some examples of it. In the midst of perfect health, without obvious cause or warning, or after some unusual and sudden muscular effort, or after a blow on the belly, or after a trifling diarrhoea or some slight constipation, or following some ordinary insignificant error of diet, a vigorous adult is seized with severe pains in the abdomen. The pains are mostly griping and colicky in character, they usually come and go at short intervals, and they are usually referred to the neighbourhood of the

* Notes on Intestinal Obstruction. By Jonathan Hutchinson, F.R.C.S. *The British Medical Journal*, August 31st, 1878.

navel. Sometimes the pains are excruciatingly violent, or they are persistent, or they spread over the whole of the belly, or they are of a "bearing-down" character, and are attended by painful but fruitless efforts at stool. Acting on the familiar hypothesis that something has "disagreed" and requires clearing off, the patient usually forthwith takes a domestic purge. The pains continue and grow more frequent and severe, and the bowels remain unrelieved. At this stage vomiting generally appears, and a doctor is summoned. The gravity of the patient's condition is usually recognised, and pains are quelled and peritonitis staved off by opium, while efforts are made to open the bowels by enemata; sometimes, unhappily, the pathological possibilities are not adequately appreciated, and the stronger cathartics are injudiciously administered. Save for the passage of a little delusive flatus, or of the contents of the bowel below the difficulty, the belly remains ominously closed. Vomiting continues, and, in a variable time, the vomited matter becomes faecal in appearance and odour, while at first it consisted only of ordinary stomach-contents, or of a bilious watery fluid. The case grows

more desperate ; marked collapse soon declares the patient's increasing danger. The extremities chill, the respirations become shallow and frequent, and the voice fails and thickens, while the pulse is small and rapid, the abdomen distended and drummy, and the face pinched, with pointed nose, sunken eyes, and thin, retracted lips. Hour by hour, and day by day, the sufferer grows worse, until, bathed in cold sweats, with parching thirst, frequent fæcal eructations, hiccup, shortening and shallower breathing, voice all but extinguished, dry brown tongue, Hippocratic face, failing and uncountable pulse, and mind unclouded to the end or gently wandering in the last few hours, death closes one of the saddest and sharpest scenes which human misery can show.

But the terrible and lethal condition* I have endeavoured to describe is not wholly hopeless. It is true it is very generally fatal, within six days at the most, yet patients have got well without surgical operation, even when internal strangulation has brought them to the very verge of death. Surgical art, I freely

* "Morbus terribilis, creberrime letalis."—De Haën

and thankfully acknowledge, has rescued not a few whom the skill of the physician has proved powerless to save, and this art promises, I believe, to include in a not distant progress a material reduction in the present high mortality of intestinal closure. "There is no cause of acute occlusion of the intestine," writes Leichtenstern, "which cannot spontaneously disappear as well as originate. An intestinal knot can loose itself, an incarcerated or strangulated loop can become free, an invagination can become disengaged, compression cease, twisting or dislocation of the intestine with angular bend can straighten itself, a lodged gall or intestinal stone or foreign body may be dislodged and evacuated, and severe faecal obturation may be overcome."* But we must never forget, I would strongly insist, that the relative proportion of cases of spontaneous recovery from acute intestinal occlusion is very small indeed—so small as to support only a very uncertain hope of life in any particular case. I fear such a hope is often a harmful one, for I am afraid that its sympathetic exaggeration has sometimes inspired a disas-

* Leichtenstern. Op. cit., page 508.

trous inactivity, which has frittered away in fruitless endeavours and vain expectations the time for the fairer chances of life which may be given by surgical help.

NOTE ON THE CAUSE AND CURE OF A FORM OF BACKACHE.*

Backache of loaded colon.—Character and position of the pain.—Cure.

EARLY in the year 1881, in a note which was published in a weekly professional journal, I asked the attention of my brethren to a form of backache which had not, so far as I knew, been described before.† I desire now to refer to the subject again, and to record that my further experience in practice has confirmed my previous observations upon the point in question.

Our therapeutics is always especially satisfactory when we remove pain by removing the cause of it. Subjective symptoms are always important diagnostic signs, and they are often clear therapeutic indications. Amongst such sensations backache is frequently a leading symptom, and one also which is dwelt upon pressingly

* Published in *The Lancet*, January 1st, 1887; since revised.

† *The British Medical Journal*, February 19th, 1881.

by patients. Of backache there are divers forms, with different causal and curative indications. The late Sir George Johnson, in an able clinical lecture, and Mr. William Squire, in a practical memorandum, have drawn the attention of the profession to many of these.* But they have not mentioned a variety of backache in which the cause of the pain is traceable to the condition of the larger bowel. I find in my practice that some patients complain of a pain, aching, dull, and heavy in character, and extending "right across the back." When asked to point out the position of the pain, they indicate it by carrying a hand behind the trunk and drawing the extended thumb straight across the back, in a transverse line, about half-way between the inferior angles of the scapulæ and the renal region. This pain I venture to attribute to a loaded colon; I conclude I have found its proximate cause in fæcal accumulation in the larger intestine. The quick cure of the pain depends upon the recognition of the final cause of the malady. The pain disappears after the exhibition of an efficient cathartic. This particular form of back-

* *The British Medical Journal*, February 12th, 1881.

ache is a concomitant of habitual constipation, although not an invariable one. It is significant especially of the alvine sluggishness of sedentary persons. In such a condition I find aloes, given in combination with iron, to yield the best therapeutic results. I prefer Socotrine aloes, and I prescribe one, two, or three grains of it in a pill, combined with a quarter of a grain of sulphate of iron, and one grain of extract of hyoscyamus. This pill should be taken every night. We must aim at producing a full alvine evacuation daily, after breakfast. When a saline cathartic is indicated, I usually employ the old-fashioned Rochelle salt. This "goes" well with tea, coffee, or cocoa. One or two teaspoonfuls may be taken an hour before breakfast, dissolved in a large cupful of one of these beverages.

XI.

UNGUENTUM RANUNCULI FICARIÆ IN THE TREATMENT OF HÆMORRHOIDS.*

Principles of the cure of piles.—Pilewort.—Preparation of the ointment.—Application of the remedy.

I DESIRE now to publish a formula which I have designed for a certain non-official preparation. This preparation I have used for many years past, and I am using it now, with much success in practice. While many cases of hæmorrhoids are distinctly surgical in nature, management, and cure, and are not rightly and not usually included within the scope of a physician's practice, there are many morbid conditions, of what may be called a hæmorrhoidaloid character, affecting the anal margins, with which the practical physician has to deal in his daily work, as troublesome incidents in the course of other greater or more general maladies, and he is often even called upon

* A paper published in *The Birmingham Medical Review*, May, 1901.

to relieve by medicinal means, and without the invitation of surgical measures, hæmorrhoids which are distinct tumours within or without the anal aperture, and which tumours, for various and sufficient reasons in particular cases, are not submitted to the surgical cures of the knife, the ligature, or the cautery. In such cases various ointments, of officinal or of magistral formulæ, are usually used, with more or with less success, as local applications to the affected parts. Of the ointments I have used in such cases, I have mostly used for several years, and as I have found with prosperous therapeutic results, one made from the plant *ranunculus ficaria*. Of course we all know, if we be sound therapists, that the use of any topical applications, in the treatment of piles and local hæmorrhoidal conditions, is only supplementary to the relief or cure of the well-known constitutional conditions and visceral obstructions which occasion the disease. As Erichsen rightly taught: "In conducting the treatment of a case of piles, that surgeon will succeed best who looks upon the disease not as a local affection, merely requiring manual interference, but as a symptom, or rather an effect, of remote visceral obstruction and disease, the

removal of which may alone be sufficient to accomplish the cure, without the necessity of any local interference ; or, should it be thought necessary to have recourse to operative procedure, this must be made secondary to the removal of those conditions that have primarily occasioned the congestion and dilatation of the hæmorrhoidal vessels."*

I was led to the construction of a formula for an ointment of *ranunculus ficaria*, and the use of that ointment in my practice, by dint of habitual herbal reading and botanical observation. I venture to think that a physician who wishes to advance his art may still study herbs and herbals with much advantage. The *ranunculus ficaria*—sometimes called *ficaria verna*, and popularly known by the names lesser celandine and pilewort—is a well-known British, wild, perennial plant, showing in the spring in meadows, hedgebanks, and especially in woodlands where the trees are not crowded, its bright, glossy, yellow, starlike blossoms, and shining, green, kidney-shaped or heart-shaped leaves. The perennial root bears amongst its fibres many little fig-

* The Science and Art of Surgery.

shaped tubercles ; hence the name *ficaria*. The larger of these tubercles are of an elongated poly-poidal form, and about half an inch in length. They are brownish externally, and fleshy upon section. To prepare the ointment, I direct that the whole fresh plant be used, gathered at the time of its greatest perfection--namely, when it is blooming in the spring. The plants, cut into small fragments, are kept immersed in melted pure hog's lard, at a temperature of about 100°F., in the proportion of one part by weight of the plant to three parts of lard, for 24 hours. At the end of that time the portions of infused herb in the melted lard are subjected to sufficient pressure to produce the yielding of their juices to the fatty infusion, which infusion is thereupon strained and allowed to cool and solidify, to form the ointment. Care must be taken not to raise the temperature of the mixture too high, lest the colour of the ointment be spoiled. The ointment should be green, of a shade which may be described as a bright green olive-green. It should be applied to the affected parts by inunction, with the aid of a finger, about twice daily, preferably just after an alvine evacuation. For its English name, the ointment might be called

- ~ celandine cerate, and the word cerate might be justified literally by preparing the ointment with white bee's wax and oil, say almond oil, in due proportions, instead of with hog's lard, infusing the plant in warmed oil.

Of the ancient reputation of the therapeutic virtues of pilewort in hæmorrhoidal affections, and of the popular appreciation of those virtues in the domestic medicine of country places, abundant record is to be found in many English herbals and in many botanical accounts of our native flora. Medical archæologists will enjoy this little pilewort's lore, with its "doctrine of signatures," to which doctrine we owe our early knowledge of opium, and with its popular repute amongst the herb-curers of the people, a remedial vogue of the kind in which our immortal Birmingham Withering found and gave to us even the modern use of digitalis.

XII.

THE CURE OF ECZEMA.*

The treatment must be both local and constitutional.—Sources of local irritation.—Struma.—Gout.—Other causal bases.—Use of improved oleates.

To cure eczema the therapist must be able to remove, or, at the least, to control into innocency, its local and its constitutional causes. There must be prevention, in any given case, that there be eczema at all, and also the healing of its local

* On this subject I have published several papers, of which I give a list here. I have revised them, brought them up to the present time, and blended them in this chapter.

Oleate of Zinc in the Treatment of Eczema; *The British Medical Journal*, April 17th, 1879.

Notes on the Treatment of Eczema; *The Practitioner*, November, 1879.

Oleate of Lead in Eczema; *The British Medical Journal*, (1) May 29th; (2) June 19th, 1880.

Treatment of Eczema (Abstract of Clinical Lecture); *The British Medical Journal*, December 23rd, 1882.

Remarks on the Therapeutic Uses of some Improved Oleates; *The Birmingham Medical Review*, February, 1884.

manifestations. In failure to recognise the general constitutional or underlying condition with which the affection of the skin is associated, or in failure to treat it successfully, usually lies the cause of failure to cure a case of eczema. Eczema is nearly always a local expression of one of several diatheses, with which it is linked in intimate causal relation. Some local irritation may determine or keep up the local outbreak and be its proximate cause ; but it is only a concurrent cause. The proneness to the local malady, its remote cause, the reason why the local irritation results in eczema, is to be found in some general constitutional abnormality. In the treatment of eczema we should always search for, and, finding it, endeavour to remove, any sources of cutaneous irritation, such as scratching, the wearing of flannel next to the skin, uncleanness, exposure of the affected part to the irritating action of heat, cold, water, urine, discharges; bad soap, or any mechanical or chemical irritants such as are met with in various occupations. But in the majority of cases no such external excitants are found ; the eczema is merely the local expression of a constitutional vice : the cause is constitutional. To treat eczema successfully we must

not concentrate our attention and our remedies on the eczema only ; but, while adopting suitable measures for soothing and healing the inflamed skin, we must carefully study and favourably modify the diathetic condition which underlies the local mischief and is its essential constituent.

The writings of Dr. Tilbury Fox, who brought to the study of dermatology not the narrow vision of the specialist but the broad insight of the cultivated clinical physician, are characterised by an enlightened recognition of the part of constitutional states in the causation of diseases of the skin ; he did more, probably, than any recent writer to expound and explain the dependence of cutaneous disorders upon general abnormalities.

The most prominent and best recognised of the causal relationships of eczema are those it owes to struma and gout. The eczema of infants, children, and young adolescents, especially when the discharge from the affected surface contains pus, is nearly always strumous, and yields only to cod-liver oil, iodides, iron, and suitable hygienic measures. Fox went further ; he taught that "senile struma is an important state to recognise." On the other hand, the

chronic eczema of middle and advanced life, especially in males, is commonly gouty, and is benefited by purgative mineral waters, Friedrichshall, Hunyadi Janos, etc., colchicum, iodide of potassium, alkalies, and lithia, and an arrangement of diet and exercise calculated to promote the excretion of uric acid. The nervous temperament often seems to have some pathological relationship with the gouty diathesis; we may see a gouty eczema suddenly aggravated by mental anxiety. Apart from gout and struma, a condition of "general debility," of nervous depression and general feebleness arising from worry or over-work, is often the chief factor in the production of eczema. Here iron, arsenic, rest, and good food are needed. A troublesome form of chronic eczema of the legs is apt to arise in connection with chronic renal œdema of the same parts; in this association there is often a gouty element. Chronic eczema may have a syphilitic basis and yield to specific treatment. Eczema does not occur as a syphiloderm; but the chronicity of an eczema is often due to an unexhausted syphilitic taint, either acquired or hereditary. As illustrations of the dependence of eczema upon general constitutional states,

I have only pointed out some of the more prominent etiological alliances of the malady. I might mention others, such as "sluggish liver," and gastric and bronchial catarrh.

I would say to my clinical pupils, do not neglect to learn the treatment of diseases of the skin, and especially of eczema—by far the commonest of such affections. By attention to a few well-established details of practice, eczema can generally be cured, and always greatly ameliorated. I want to impress upon you two points of practical moment, namely, eczema is often brought out and kept up by local irritation, and it is always an expression of a diathesis. We can often best cure eczema by not regarding it as a disorder of the skin. In failure to recognise, and treat successfully, the general constitutional condition with which the affection of the skin is associated, and which is its foundation, lies a frequent cause of failure to cure eczema. Eczema is mostly a local expression of one of several diatheses, or of the various combinations of such diatheses, namely, the strumous, the gouty, and the nervous. Some local irritation usually determines and frequently keeps up an eczema, and is its ultimate cause; but the proneness to the

local malady, its penultimate cause, the reason why the local irritation results in eczema and not in something else, is to be found in some general constitutional abnormality. In a case of eczema, before you prescribe drugs, always search for, and finding, remove, causes of local irritation—such as, dirt, lice, scratching, rubbing, the wearing of flannel next the skin, or exposure of the affected part to the irritating action of heat, cold water, urine, discharges, bad soap, or any mechanical or chemical irritants, such as are to be met with in various industrial occupations.

One of the best local remedies for eczema is the ointment of oleate of zinc, for which the profession is indebted to Dr. Crocker.* After using the preparation for several months in a large number of cases, both in hospital and in private practice, I have elsewhere ventured to express my testimony in its favour.† Some time ago,‡ with the view of testing its action in the treatment of eczema, I desired Messrs. Southall, of Birmingham, to make for me an ointment of oleate of lead. After a series of

* *The British Medical Journal*, October 26th, 1878.

† *Ibid.*, April 19th, 1879.

‡ *The Practitioner*, November, 1879.

experiments they produced an excellent ointment according to the following formula :—

Lead oleate, 24 parts.

Heavy and inodorous paraffin oil, 14 parts.

The lead oleate is prepared by heating a mixture of oleic acid and oxide of lead. I can confidently recommend this ointment as a very efficient local application in eczema. I have used it successfully in a large number of cases.

About the year 1811, Chevreul discovered oleic acid.* Soon afterwards notices of the chemical and pharmaceutical qualities of medicinal oleates were published in France. Professor Attfield's is the first English paper on the subject.† From that time I know of no other publication on the use of oleates until the appearance of Mr. John Marshall's paper in 1872. Since that date many papers have been published on the chemistry, pharmacy, and therapeutics of oleates, and various methods for the preparation of oleates have found favour. So early as 1879 I recorded my experience of the curative value of oleate of zinc in the treatment of eczema, and in the

* Recherches sur les Corps Gras.

† "On a Method of Dissolving Alkaloids in Oils." *The Pharmaceutical Journal*, 1862-3.

same year I published some observations upon the employment of oleate of lead in the cure of that affection. In a paper on the preparation and uses of oleates, read before the Medical Society of Pennsylvania, Dr. Shoemaker pointed out the use of chemically true oleates, in contradistinction to those previously prepared by the direct union of oleic acid with a metallic base, with or without the aid of heat.* The new oleates were obtained by the double decomposition of sodium oleate with solutions of neutral salts, the sodium oleate being prepared by the saponification of oleic acid with a solution of sodium-hydrate. A solution of the sodium oleate in eight parts of water is precipitated by a neutral salt, and the precipitate, washed and dried, is the oleate required.

The therapeutic uses of the several precipitated oleates of lead and of zinc I have examined and tested extensively in my private and in my hospital practices. As compared with the older preparations, the improved oleates present the great advantage that they can

* *The Medical Bulletin*, July, 1882. An excellent summary of Dr. Shoemaker's paper appeared in *The Pharmaceutical Journal*, October, 1882.

be used as dusting powders as well as with an unguental excipient, so that their remedial virtues are available in those affections of the skin, and especially in those eczematous eruptions, in which greasy preparations do not "agree" with the morbid surface. It is well known to therapeutists that medicaments applied as dusting powders are preferable to ointments in many of the acuter forms of discharging affections of the skin. The zinc oleate is a fine pearl-coloured powder, with a peculiarly soft soapy feel, like powdered French chalk. The lead oleate is a white powder. Either of these oleates may be used alone as a dusting powder for the skin, or they may be so used when diluted with powdered starch. One drachm, or a drachm and a half, of oleate of zinc or of oleate of lead, well mixed with an ounce of petroleum jelly, or with a like quantity of benzoated lard, makes a good ointment, which I have found curatively efficient in a large number of cases of eczema, in various stages of the disease. When a soothing effect is desired, the lead oleate is to be preferred ; when an astringent is indicated, the zinc oleate should be chosen.

XIII.

THE CURE OF CHOREA BY LARGE DOSES OF ARSENIC.

My early use of large doses of arsenic in chorea.—

Mode of administration of the remedy.—

Successful case.

IT is now our general therapeutic experience that large doses of arsenic are often curative in chorea, when smaller doses, and what used to be held to be the usual doses, fail. Herein is one of the best of the therapeutic advancements of our times. Whose is the earliest discovery of this truth I know not. Perhaps I was the first to publish it. Perhaps several clinical observers arrived at the truth simultaneously, or about the same time. At the least, I made it out independently of other workers, purely by my clinical observation, and I published the fact more than twenty-one years ago.

In *The British Medical Journal*, for December 18th, 1880, I wrote:—"I think that arsenious acid is the best remedy for chronic

chorea in the *materia medica*. If I remember rightly, some statistics of cases of chorea treated by various drugs were published in the *St. Thomas's Hospital Reports* about ten years ago. From these it appeared that arsenic cured the malady more quickly than any other remedy; that is, the duration of the chorea was shorter under arsenical treatment than when zinc or other drugs were given. What I have seen in practice, especially when I was physician to the Children's Hospital,* is generally confirmatory of this conclusion. In determining our treatment of a case of chorea, we must always keep in view the causal antecedents of the disorder. We mostly find chorea associated with, and causally related to, one or more of four distinct conditions—namely, rheumatism, acute or subacute; faulty hygienic circumstances, especially an insufficiency of animal food; emotional shock, particularly fright; reflex irritation due to intestinal worms. Each of these separate circumstances calls for appropriate treatment. But, however arising, for the chorea itself, if I may be allowed the phrase, arsenious acid is the best drug we

* The Birmingham and Midland Free Hospital for Sick Children.

have. Whatever dose we give, it is best to administer it in solution, freely diluted with water, and immediately after a meal. The dose of liquor arsenicalis, as laid down in text-books, is too small. Garrod, for instance, places it at from two to eight minims. Some time ago, I tried how much arsenic a choreic young woman could bear. I found I could gradually increase the dose of Fowler's solution from ten minims up to a drachm (equal to half a grain of arsenious acid) thrice daily, apparently with good effect on the chorea, before I produced signs of gastrointestinal irritation. Sometimes chorea is a very obstinate affection, and chronic cases often pass from doctor to doctor, and go through long courses of medicaments, without benefit. The point I want to insist upon is this: we may cautiously increase the dose of liquor arsenicalis far beyond the limit of the text-books with good effect; and we may so cure cases of chorea which smaller doses of the remedy would not affect."

Again, in *The British Medical Journal*, in an abstract of a clinical lecture delivered at The Queen's Hospital, published on December 23rd, 1882, I wrote:—"This little girl, ten years old, about to be discharged, owes her recovery

from chorea to the administration of arsenic. We had to give the remedy freely before the disorder gave way. The case was one of subacute general chorea, of moderate severity, occurring in a weakly, nervous girl. We began with five minims of Fowler's solution of arsenious acid, thrice daily, in an ounce of water. In three days, the dose was increased to ten minims; in three days more, to fifteen; in three days more, to twenty; and so on until she was taking thirty-five minims of the solution thrice daily. When this last dose was reached, the choreic movements, which before had been gradually subsiding, entirely ceased; and a little vomiting warned us that we had reached the first and most usual physiological action of our remedy. We then withdrew the drug for two days; after that time we gave it again, in fifteen-minim doses, for a few days more, when we gave it up altogether, and the child remained well. You have seen me treat many cases of chorea in this way with similar success. The dose of liquor arsenicalis in chorea, as laid down in text-books, is too small. . . . Arsenic, freely and properly given, rarely fails. If a case of chorea come to you, and you learn that arsenic has been given and has failed, give

it again, in large doses. You may cautiously increase the dose of liquor arsenicalis, far beyond the limits of the text-books, with the best results in chorea ; in this way, you may usually cure cases which smaller doses of the remedy would not affect."

XIV.

CHLORIDE OF CALCIUM IN THE TREATMENT OF PULMONARY TUBERCULOSIS.*

*Various remedies in pulmonary tuberculosis.—
Therapeutic value of chloride of calcium.—
Its old repute in struma.—Its value in night-
sweats.*

A DUE recognition of the dual origin of human tuberculosis, in the growth of a parasitic bacillus and in a habit of body which favours such growth in the living tissues, has led to great improvements in the therapeutics of pulmonary consumption in recent years. My present observations refer only to that part of such therapeutics which lies in medicinal treatment. Every case of pulmonary consumption requires especial study, and ought to be treated by no routine or set practice because it is what it is. In one case anæmia is prominent and calls for iron or for

* My first paper on this subject was published in *The British Medical Journal*, June 5th, 1880.

arsenic; in another, continued but scanty hæmoptysis calls for ergot or for hamamelis; in another, a racking and frequent cough calls for opium or some of its derivatives; in another, dyspepsia calls for alkalies or for acids, for bitters, or for proteolytic or amylolytic digestives; in another, we have to aim at controlling profuse perspiration or at checking an exhausting diarrhœa. Apart from these and other particulars, I suppose practitioners are agreed that cod liver oil, given either alone, or variously combined with other agents which tend to promote its assimilation or supplement it as a restorative, stands at the head of remedies designed to advance the general nutrition of the phthisical. Have we any other general remedy? For a long time I trusted to syrup of the iodide of iron. This I gave up for a mixture of hypophosphites and iron—five grains of hypophosphite of lime, ten grains of hypophosphite of soda, and fifteen minims of syrup of the phosphate of iron, for a dose. This is a good combination, and I still use it. But chloride of calcium is my favourite general drug in pulmonary consumption. I have used it very extensively for many years, in hospital and in private practice, and I believe with great

advantage. Perhaps you will say, in a commendable spirit of logical scrutiny, do you give chloride of calcium alone? I do not. I give it with cod liver oil, or with some emulsion of cod liver oil, in a separate watery solution; or I combine it, according to circumstances, with a vegetable bitter, or with morphia, or with ergot; and I believe I get better results with chloride of calcium in these combinations than I do with anything else in the same combinations. By the logical method of "concomitant variations," in the limited and qualified sense in which it is applicable to ordinary therapeutic experience, I have worked out to my own satisfaction the practical induction that chloride of calcium is, next to cod liver oil, our best general remedy in tubercular pulmonary phthisis. Those of us who are in earnest, and who believe that therapeutic art—an art which includes, but which is much more than, the administration of combinations of the materia medica—can powerfully modify morbid processes, and can powerfully aid the *vis medicatrix naturæ*, and who think well of what we do, have done, have not done, and shall do for our patients, must be constantly arriving at conclusions, as the result of obser-

vation in our own practices, which modify, confirm, correct, or extend our therapeutic conduct. These conclusions may not always be framed by formal canons or able to bear the test of an exhaustive logical scrutiny, but, if such conclusions, which we are constantly forming for ourselves, are accepted by each of us, as reasonable and responsible men, as guides for our own therapeutic action, they are eminently worthy of communication to our brethren. On this conclusion I have long acted with confidence. My attention was first called to the value of chloride of calcium in some tubercular diseases by a paper in one of our medical journals, wherein it was stated that the drug was much used by the late Dr. Warburton Begbie.* Scarcely mentioned, if noticed at all, in the therapeutic text-books

* Dr. Warburton Begbie read an instructive paper on "The Therapeutic Actions of Muriate of Lime" before the Medico-Chirurgical Society of Edinburgh, on May 15th, 1872. This paper was afterwards published in the *Edinburgh Medical Journal*, and is contained in Sir Dyce Duckworth's volume of "Selections from the Works of the late J. Warburton Begbie, M.D., etc.," issued by the New Sydenham Society, in 1882. Dr. Begbie wrote:—"The cases in which I have had occasion most frequently to employ the muriate of lime have been instances of struma, the most notable feature of which was the enlargement of the lymphatic glands in the neck."

of our day, chloride of calcium has an old and well-established repute as a remedy for strumous glandular swellings. In 1808, Dr. James Sanders, of Edinburgh, in an important work on pulmonary phthisis, wrote:—"I think that I have ascertained that the muriate of lime has a more powerful effect in removing indolent scrofulous tumours than any other substance used as a remedy."* In subacute and chronic cases of pulmonary consumption I usually give ten grains of chloride of calcium, dissolved in three drachms of water and mixed with a drachm of glycerine, in a wineglassful of water or milk, twice daily, immediately after meals. I think the drug especially tends to check phthisical night-sweats, and that it favours increase of weight, and the drying up of pulmonary lesions. Of course I do not maintain it does these things in all cases. What I have stated are general conclusions, open, I am aware, to objection on the ground of their insufficient logical basis, but they are conclusions which have been and are for me amongst my most trusted indications for thera-

* "Treatise on Pulmonary Consumption." By James Sanders, M.D., Edinburgh, 1808.

peutic action. In prescribing chloride of calcium, we must be careful to write the name of the remedy distinctly and in full, in order to avoid an error from which one of my patients suffered, namely, the substitution of "chloride of lime" for the drug I had intended to use.

XV.

MEDICATED LOZENGES.*

Modern therapeutic use of lozenges.—Officinal trochisci.—Magistral formulæ.—Borax in a lozenge.

“QUI miscuit utile dulci” may, with apologies to Horace, be spoken of a physician who prescribes a well-medicated lozenge, who knows how to combine efficient remedies in the acceptable vehicle of a delectable sweetmeat. In many affections of the mouth and fauces, as well as in some other morbid conditions, the form of lozenge offers a convenient, agreeable, and efficacious method of administering many remedies. We owe the modern therapeutic use of lozenges in some part to the old Edinburgh *Pharmacopœia*. In Dr. Paris’s time, in the twenties of the last century, he pointed out that, inasmuch as trochisci, troches, or lozenges

* A paper published in *The British Medical Journal*, November 30th, 1901.

were then regarded as objects rather of confectionery than of pharmacy, neither the London nor the Dublin College condescended to notice them, while the Edinburgh *Pharmacopœia* contained several formulæ for their preparation, and while they were undoubtedly useful in medical practice, either in the officinal forms or in certain magistral combinations, for which last Dr. Paris gave some valuable suggestions in his classical *Pharmacologia*. Since that time many considerations, physiological and pathological, and the use of improved diagnostic appliances, the laryngoscope, to wit, have extended the use of medicated lozenges. The last edition of the *British Pharmacopœia* gives the formulæ for seventeen forms of trochiscus, these being made up with a "fruit basis," with a "simple basis," with a "rose basis," or with a "tolu basis." Besides these officinal lozenges there are many other medicated ones "in the market," some of them being tarred with the black mark of proprietary possession, and not a few of them being of unknown composition. In my present communication I have two objectives, namely, to encourage my brethren to prescribe lozenges in their own magistral formulæ whenever they

can, and to draw professional attention to a "basis" which I have found in my own practice to be useful for the purpose. This "basis" is known as the *pasta glycyrrhizæ alba*, or *pâte de réglisse blanche*. It is described in Beasley's *Pocket Formulary*. It is prepared like the better known *pasta althææ* or *pâte de Guimauve* of the French *Pharmacopœia*, liquorice root being used instead of marsh-mallow root. This white liquorice paste is prepared from the following formula, according to Beasley: Take of decorated liquorice root ʒiv , water Oiv ; macerate for 12 hours; strain and add lb.ijss of picked gum arabic and lb.ijss of refined sugar; dissolve, strain, and evaporate to the thickness of honey, constantly stirring, and add gradually the whites of 12 eggs well beaten with ʒiv of orange water; evaporate with constant stirring till the paste is so firm as not to adhere to the hands.

If the physician decide upon the exhibition in a given case of illness of a remedy in the vehicular form of a lozenge, the particular drug or drugs therapeutically indicated for this purpose in the particular case should be selected with a prescriber's usual care, and prescribed with the

pasta glycyrrhizæ alba. The active drug or drugs should be skilfully combined by the dispenser, *secundum artem*, with the basis I have described, in the process of the making of that basis at a time before the paste attains its final consistency. For example, borax is an excellent local subastringent, detergent, and antiseptic. A lozenge of it may be prescribed magisterially as follows: R Boracis gr.ij, pastæ glycyrrhizæ albæ (Beasley) gr.x; misce, fiat trochiscus. Signetur: one or two to be slowly sucked, as directed. A lozenge of borax so made is "nice" enough to be agreeable without being quite a sweetmeat. When freshly made it dissolves slowly and well in the mouth, and it is tough enough to be in part a masticatory.

XVI.

FUMING INHALATIONS IN ASTHMA.*

Experience of their use. — Formulæ. — Therapeutic effects.

THE relief of dyspnœa which the use of a well-arranged fuming inhalation affords in spasmodic bronchial asthma is indisputable. For many years I have prescribed, in my own magistral formulæ, certain preparations of this kind, with signal therapeutic advantage. Some years ago, the attention of the general public was strikingly attracted to this method of alleviating the dyspnœa of the asthmatic paroxysm, by references in the columns of the daily press to the relief from suffering which the use of a fuming inhalation, the material for which inhalation was probably supplied in the form of a proprietary nostrum,

* From short papers on the subject which I published in *The British Medical Journal* in 1881 and in *The Birmingham Medical Review* in 1887.

afforded to the late Earl of Beaconsfield in his last illness.

Many years ago a very intelligent gentleman, who had suffered long from severe dyspnœal paroxysms, almost nightly, of bronchial asthma, consulted me, and informed me that he had tried a large number of remedies, of which remedies none relieved him so much as did the inhalation of the fumes arising from the burning of an "anti-asthmatic powder," which powder was a secret preparation and could only be purchased at a particular place in London. I think physicians agree that the personal experience of an intelligent patient, who has suffered from a painful malady of long standing, as to the efficacy of the remedies he uses, is usually worthy of our careful consideration, at least upon the point of their efficacy in the relief of pain such as dyspnœa. This incident led me to examine with some care the method of relieving the asthmatic paroxysm by the employment of fuming inhalations. The result of my work was that I constructed a formula for an "asthma powder," which I have long used in my practice and which fulfils my expectations well.

For many years I have prescribed the follow-

ing fuming inhalation for many of my bronchially asthmatic patients, with marked therapeutic success.

R̄ Potassii Nitratis, ʒss.

Pulveris Anisi Fruct., ʒss.

Pulveris Stramonii Fol., ʒj.

M. ft. pulv.

A thimbleful of this powder, placed upon an earthenware plate, is pinched by the fingers into a conical shape and lighted at the top of the cone. It burns with a smouldering and gently deflagrating flame, like a pastille, and is held near and beneath the patient's face, who inhales the smoke of the burning heap of powder. The ingredients of the powder should be finely powdered, well mixed, and dry.

This method of treating the dyspnœa of bronchial asthma is very marked in its good results, in most of the cases in which it is employed. The inhalation of the smoke of the burning powder appears to produce several good effects, namely, it allays bronchial irritation and spasm, promotes expectoration, and gives relief, quickly and distinctly, to the painful dyspnœa. Such therapeutic indications are important and often imperative. In busy practice we are often called

upon to give relief of this kind. For such help the patient presses urgently; the "*besoin de respirer*" is a very pressing need. If we cannot give such relief, he is likely to seek and to find it elsewhere, perhaps from some "outside" source. We cannot expect the use of fuming inhalations in the treatment of bronchial asthma to be much more than palliative of the dyspnœal paroxysms. For fuller treatment of the disease, namely, for the reduction of the frequency and the severity of the asthmatic attacks, and for their abolition, if it may be, many other resources of our art are available, in the several directions of medicinal, dietetic, climatic, hygienic, and gymnastic therapeutics.

As a variant of the powder of which I have just given the formula, we may prescribe a powder containing black tea, lobelia, and oil of eucalyptus. Here is such a prescription:—

R. Potassii Nitratis, ʒss.

Pulveris Stramonii Fol., ʒi.

Pulveris Anisi Fruct., ʒij.

Pulveris Lobeliæ Inflatæ, ʒj.

Pulveris Fol. Theæ Sinensis Nig., ʒj.

Ol. Eucalypti, ʒxv.

M. ft. pulv.

XVII.

ETHEREAL TINCTURE OF CAPSICUM.*

External use of capsicum.—Advantages of ethereal tincture.

I AM finding excellent results in practice by the use of some preparations of capsicum as rubefacient counter-irritants. In my hands this old remedy, red pepper, has been successful as a local application in cases of subacute gout, in chronic gout, in chronic articular rheumatism, in muscular rheumatism, and also in some cases of bronchial catarrh and chronic bronchitis. After some consideration and observation upon the subject, I decided to employ an ethereal tincture of the drug, and I asked Messrs. Southall to make a new tincture of capsicum of the strength of the alcoholic tincture of the Pharmacopœia, but made with officinal pure ether instead of with rectified spirit of wine. After some satisfactory use of this ethereal tincture in my own experience as a physician, I now venture to recommend the remedy to my brethren. I find an ethereal tincture of capsicum, by reason

* A note published in *The Lancet*, May 17th, 1890.

of the comparatively rapid evaporation of its ether, can be used more freely than an alcoholic tincture as an application to the skin. Furthermore, I think the solvent action of ether upon the sebaceous secretion of the skin makes ether a menstruum preferable to alcohol for drugs designed to affect the cutaneous surfaces, or to produce therapeutic effect through the skin. If a little ethereal tincture of capsicum be gently rubbed upon the back of a hand it will produce a feeling of warmth, with some sensation of burning and pricking, in about a minute's time, together with an irregular and patchy hyperæmic redness, which may last some hours. If the tincture of capsicum be used as a rubefacient in the form of a liniment, an oily admixture gives frictionability, and an equal part of some bland fixed oil may be added. Solution of ammonia or oil of turpentine, or both of them, in such a liniment are good adjuvants, if a sharply rubefacient effect be desired. An excellent and powerful rubefacient liniment may be made of equal parts of ethereal tincture of capsicum, liquor ammoniæ, oleum terebinthinæ, and oleum lini. The ethereal tincture may also be applied to the skin upon spongio-piline.

XVIII.

ETHER AS A MENSTRUUM IN MEDICATION BY THE SKIN.*

Absorption of medicines by the skin.—Faultiness of the officinal plasters.—Obstacles to absorption by the skin.—Advantages of ether as a menstruum.—Ethereal tinctures.—Belladonna.—Iodine.—Menthol.

IN some researches in iamatology which I have been making for some years, it has occurred to me that the use of the skin in therapeutics, as a channel for the exhibition of remedies designed to effect either local or remote curative results, or both of them, might be extended in range, cleared in precision, and improved in efficacy. I know the question of the absorption of medicines by the skin bears many difficulties, and has excited some disputes. Authorities have been divided as to how far, if at all, the local and remote effects of remedies

* A paper published in *The Lancet*, July 12th, 1890,

applied to the human body in morbid states can be produced through the cutaneous surface. No practitioner of medicine is likely to doubt, however, that the human body, in many of its organs and tissues, can be readily brought under the direct and distant influences of hydrargyrum by the cutaneous inunction of mercurial ointment. It is easy to question the efficacy of remedies exhibited by the skin when the effects which they produce are less objective in their demonstration than those of mercury. We may recall that the capacity of the skin to absorb medicinal substances from their aqueous solution in baths was accepted in the medicine of the ancients, whose therapeutic uses of medicated baths we are now learning, *longo intervallo*, to imitate. The question has been discussed frequently since the close of the last century.* At that time Abernethy and Falkner concluded, from a series of experiments, that the absorption of some remedies through the skin did take place under certain conditions; and, while some other observers were led to qualify or to contradict these inductions, affirmative conclusions upon

* See Dr. Scoresby-Jackson's Notebook of Materia Medica, etc., fourth edition.

the subject were fully supported by Braconnot, Chevallier and Petit, and by other investigators. Some striking instances of efficient percutaneous medication are well known to us. For example, ointment of aconitia rubbed upon the skin of the face produces anæsthesia of the subjacent sensory nerves, "so that a razor passed over the part in the act of shaving is not felt."* We are accustomed in medical practice to present remedies to the skin with a view of producing remote as well as local effects, in the various forms of the officinal emplastra, of the officinal liniments (alcoholic, oleaginous, and saponaceous), and of fatty unguents. Of these separate forms of medicaments in enepidermic use, the ointments and the oily liniments are probably the most active, because of their easy admixture with the fatty sebaceous secretion of the skin. I do not think the structure of any Pharmacopœial plaster is such as is likely to permit of the absorption of its active ingredients.

Neither a plaster of any of the officinal formulæ nor a solution in alcohol of the active principles of drugs is a scientific medicament

* Farre's Pereira's Materia Medica and Therapeutics.

for enepidermic employment and percutaneous action, if we have regard to the structure and physiology of the human skin.

I think it will be found there are in practice three separate obstacles to the absorption of a medicine through the skin—namely, the epidermis, the sebaceous secretion of the skin, and the relative insolubility of the drug which is employed in any particular case. After some observation and consideration, I thought ether would be the best menstruum at our disposal for the solution of many remedies designed for enepidermic application ; and I concluded that ethereal liniments would be more active through the skin, and certainly stand upon a better scientific basis, than plasters, than any of the officinal liniments, or even than fatty unguents. Ether presents several advantages over other bases and menstrua for remedies applied to the skin. It has great endosmotic capacity ; it probably possesses in a high degree what has been called “diffusion power ;” it is a solvent of high potency for many active drugs, or, more precisely, for the active principles of many such drugs ; and it also is a ready solvent of the fatty constituents of the sebaceous secre-

tion of the skin. When we use ether as a dissolvent for an active drug which we apply to the skin, we apply our remedy in solution in a menstruum which is a perfect solvent for the obstructing fatty sebaceous secretion of the cutaneous surface; we employ a menstruum which, by its solution of the fatty secretion, permits the most intimate application of the remedy to the bare epidermal surface. In *The Lancet* of May 17th, 1890, already quoted, I published a brief account of an ethereal tincture of capsicum which I have been using largely in practice, and which I have found to be a very active rubefacient and an efficient remedy in several painful maladies. I now venture to recommend to my brethren the employment of ether as a solvent vehicle for some other remedies which may be applied to the skin. After examining a large number of drugs, I have selected belladonna, iodine, and menthol, besides capsicum, as suitable for external therapeutic employment in the form of ethereal tinctures. Ethereal tinctures of these well-known drugs have been made according to my directions, and it has been easy to find for these preparations some considerable application

in the exigencies of daily practice. After using these ethereal tinctures with satisfactory results, I have searched my library for references to this employment of ether, and I am glad to find the following important passage bearing upon the subject in Sir. T. Lauder Brunton's textbook of therapeutics: "It would appear that the fat in the skin as well as the epidermis presents an obstacle to the absorption of substances in solution, but when they are applied in such a form that they can readily mix with the sebaceous matter of the skin, they are tolerably readily absorbed, as, for example, when they are used in the form of ointment. . . . They are also absorbed when dissolved in ether, and especially in chloroform, even when simply painted over the surface. Alcoholic solutions are not absorbed when painted in this way." This statement, by an authority in therapeutics so high, that medicinal substances soluble in ether are absorbed through the living skin when the ethereal solutions are "simply painted over" the dermal surface, appears to be an observation very pregnant with remedial possibilities. It is not a little surprising that we should have overlooked so promising a development of our

curative resources so completely and so long. The disadvantages of chloroform as a menstruum of this kind are numerous and obvious ; but ether is an excellent medium, either as a simple solvent or as a menstruum, for the preparation of a tincture from a crude vegetable drug. Ethereal tincture of belladonna, (*tinctura belladonnæ æthereæ*,) I propose should be made from belladonna root, with camphor, of the same strength as the belladonna liniment of the Pharmacopœia, using the officinal pure ether in its preparation instead of rectified spirit of wine. The result is a bright tincture of a brilliant "apple green" colour. I think this tincture will be found useful as a paint for the skin in cardiac and other cases in which belladonna plasters or liniments would otherwise be employed. The external application of preparations of belladonna over the heart, to calm tumultuous, irregular, and excessive beating of that organ, has long been accepted in our practice. The preparation usually employed is the officinal plaster ; if its good effects depend upon the absorption by the skin of the active principles of the extract of belladonna contained in the plaster, such a result is likely to be attained

with more potency and precision by the local use of an ethereal tincture. I have used belladonna root instead of belladonna leaves, because it gives a preparation which does not colour the surface of the skin as one made from the leaves does. In cardiac cases emplastrum belladonnæ is a clumsy and inconvenient application. It is dirty, uncomfortable, not seldom irritating, and it always offers some obstacle to the examination of the heart by physical methods. Ethereal tincture of iodine I have made of the same strength as the officinal tincture of iodine. To form an ethereal tincture of menthol I have, after many experiments, fixed upon a solution of menthol in pure ether, of the strength of one drachm of menthol in a fluid ounce of the solution. This preparation can be readily applied as a paint to the skin, and it is an efficient means of using menthol for its local therapeutic effects, especially for the removal of superficial neuralgic pains. It should be lightly painted over the painful part. The quick evaporation of the ether gives a grateful sense of coldness which supplements the analgesic action of the menthol, and allows the easy application of a succession of "coats," which leave pure menthol

in a finely divided condition upon the skin. For the application of ethereal tincture of menthol I have found it best to use a brush of glass. When the meshes of the brush become clogged with menthol by the evaporation of the ether of the preparation, they can be freed in a moment by dipping the brush into the tincture.*

* Messrs. Southall have given me much assistance in the experiments and enquiries upon which this paper is founded.

XIX.

DIET IN DIABETES.

IN many cases of diabetes mellitus, (glycosuria,) the regulation of the patient's food is a chief point in the treatment. In the therapeutic management of this difficult malady it has been long recognised that abstinence from sugar and from articles of food which are convertible into glucose causes a great lessening in the quantity of glucose in the urine, and also a marked diminution in the density and quantity of the urine, and that these changes are coincident with arrest of bodily wasting, even with gain of flesh, and also with general improvement in very many sufferers from diabetes. To meet these indications much care has been taken by many physicians to devise an extended, varied, and practicable dietary. I hope it may be useful for me to give here a diabetic dietary which I have employed in practice for many years, which is sufficiently strict for all practical purposes, and printed copies of which I am accustomed to give to patients in suitable cases.

MAY EAT :—

Butchers' Meat of all kinds, except Liver. Pork. Ham. Bacon. Poultry. Game. Fish, fresh or cured. Oysters. Crabs. Lobsters. Animal Soups, not thickened. Mutton Broth. Beef Tea. Bran Bread. Eggs. Cream. Butter. Cheese. Greens. Watercress. Mustard and Cress. Lettuce. Mushrooms. Nuts. Jelly or Custard, unsweetened.

MAY NOT EAT :—

Sugar. Any but Bran Bread. Potatoes. Asparagus. Broccoli. Carrots. Cauliflower. French Beans. Parsnips. Peas. Turnips. Arrowroot. Macaroni. Rice. Sago. Tapioca. Vermicelli. Pastry. Puddings. Fruit, fresh and preserved.

MAY DRINK :—

Water. Coffee. Tea. Soda Water. Claret. Hock. Spirits and Water, unsweetened. Burton Bitter Ale, very sparingly. Milk, very sparingly.

MAY NOT DRINK :—

Cocoa. Chocolate. Champagne. Porter. Stout. Home-made Wines. Liqueurs. Cider. Sweet Wines. Ale.

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